6211-I3 ADSL2+ Router User's Guide

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⚠ Important Safety Instructions

1. Read and follow all warning notices and instructions marked on the product or included in the manual.
2. Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these slots and openings must not be blocked or covered.
3. Do not allow anything to rest on the power cord and do not locate the product where persons will walk on the power cord.
4. Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous high voltage points or other risks. Refer all servicing to qualified service personnel.
5. General purpose cables are used with this product for connection to the network. Special cables, which may be required by the regulatory inspection authority for the installation site, are the responsibility of the customer. Use a UL Listed, CSA certified, minimum No. 24 AWG line cord for connection to the Digital Subscriber Line (DSL) network.
6. When installed in the final configuration, the product must comply with the applicable Safety Standards and regulatory requirements of the country in which it is installed. If necessary, consult with the appropriate regulatory agencies and inspection authorities to ensure compliance.
7. A rare phenomenon can create a voltage potential between the earth grounds of two or more buildings. If products installed in separate buildings are interconnected, the voltage potential may cause a hazardous condition. Consult a qualified electrical consultant to determine whether or not this phenomenon exists and, if necessary, implement corrective action prior to interconnecting the products.
8. Input power to this product must be provided by one of the following: (1) a UL Listed/CSA certified power source with a Class 2 or Limited Power Source (LPS) output for use in North America, or (2) a certified transformer, with a Safety Extra Low Voltage (SELV) output having a maximum of 240 VA available, for use in the country of installation.
9. In addition, since the equipment is to be used with telecommunications circuits, take the following precautions:
   - Never install telephone wiring during a lightning storm.
   - Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
   - Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
   - Use caution when installing or modifying telephone lines.
   - Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
   - Do not use the telephone to report a gas leak in the vicinity of the leak.

CE Marking

When the product is marked with the CE mark on the equipment label, a supporting Declaration of Conformity may be downloaded from the Zhone World Wide Web site at www.zhone.com.

FCC Part 15 Declaration

An FCC Declaration of Conformity may be downloaded from the Zhone World Wide Web site at www.zhone.com.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The authority to operate this equipment is conditioned by the requirement that no modifications will be made to the equipment unless the changes or modifications are expressly approved by the responsible party.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Notice to Users of the United States Telephone Network

The following notice applies to versions of the modem that have been FCC Part 68 approved.

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council for Terminal Attachment (ACTA). On the bottom side of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the Telephone Company.

This equipment is intended to connect to the Public Switched Telephone Network through a Universal Service Order Code (USOC) type RJ11C jack. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It has been designed to be connected to a compatible modular jack that is also compliant.

The Ringer Equivalence Number (REN) is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local Telephone Company. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point. For example, 03 represents a REN of 0.3.

If the modem causes harm to the telephone network, the Telephone Company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the Telephone Company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The Telephone Company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the Telephone Company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service. If trouble is experienced with the modem, refer to the repair and warranty information in this document.

If the equipment is causing harm to the telephone network, the Telephone Company may request that you disconnect the equipment until the problem is resolved.

The user may make no repairs to the equipment.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

If the site has specially wired alarm equipment connected to the telephone line, ensure the installation of the modem does not disable the alarm equipment. If you have questions about what will disable alarm equipment, consult your Telephone Company or a qualified installer.

Notice to Users of the Canadian Telephone Network

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation IC before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

NOTICE: The Ringer Equivalence Number (REN) for this terminal equipment is labeled on the equipment. The REN assigned to each terminal equipment provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed five.

If your equipment is in need of repair, contact your local sales representative, service representative, or distributor directly.

⚠CANADA - EMI NOTICE:

This Class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du règlement sur le matérial brouilleur du Canada.

Japan Notices

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取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

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About This Guide

Document Purpose and Intended Audience

This guide contains detailed information about the 6211-I3 router. It is intended for all users of the router.

Document Summary

Section	Description
Chapter 1, *Introduction*	Describes the features of the router.
Chapter 2, *Hardware Installation and PC Setup*	Shows how to connect the router and set up your PC to manage the router.
Chapter 3, *Device Information*	Explains how to use the web interface to obtain statistics and other information about the router.
Chapter 4, *Quick Setup*	Describes the Quick Setup configuration process.
Chapter 5, *Advanced Setup*	Describes configuration of the advanced router features.
Chapter 6, *Diagnostics*	Describes the test screen.
Chapter 7, *Management*	Describes the management functions of the router, including backing up and restoring configuration settings, viewing the system log, configuraing access control, and upgrading software.
Appendix A, *Specifications*	Lists the specifications of the router.
Index	Lists key terms, concepts, and sections in alphabetical order.

Product-Related Documents

Complete documentation for Zhone products is available online at **www.zhone.com**.

Contacting Global Service and Support

Contact Global Service and Support (GSS) if you have any questions about this or other Zhone products. Before contacting GSS, make sure you have the following information:

- Zhone product you are using
- System configuration
- Software version running on the system
- Description of the issue

Technical Support

If you require assistance with the installation or operation of your product, or if you want to return a product for repair under warranty, contact GSS. The contact information is as follows:

E-mail	support@zhone.com
Telephone (North America)	877-ZHONE20
Telephone (International)	510-777-7133
Internet	www.zhone.com/support

If you purchased the product from an authorized dealer, distributor, Value Added Reseller (VAR), or third party, contact that supplier for technical assistance and warranty support.

Service Requirements

If the product malfunctions, all repairs must be performed by the manufacturer or a Zhone-authorized agent. It is the responsibility of users requiring service to report the need for service to GSS.

1 INTRODUCTION

Introduction

Congratulations on becoming the owner of a 6211 ADSL router.

This User's Guide will show you how to set up the router, and how to customize its configuration to get the most out of this product.

Features

The 6211 router has the following features:

- Built-in ADSL modem which offers G.Dmt, G.lite, T1.413, ADSL2, Annex L, and ADSL2+ to meet different linking speeds from your ISP.
- 10/100BaseT Ethernet port to provide Internet connectivity to all computers on your LAN via additional Ethernet Switch/HUB.
- USB port allows quick installation.
- Built-in splitter provides you to connect telephone directly without using extra splitter (Model 6211-I3-x0x).
- Configuration program accessible via a web browser, such as Microsoft Internet Explorer.

System Requirements

In order to use the 6211 ADSL router for Internet access, you must have the following:

- ADSL service subscription from your ISP
- A PC with:
  - — An Ethernet 10/100BaseT network interface card or USB port
  - — A processor equivalent to or faster than a Pentium II 133 MHz
  - — 32 MB RAM or greater
  - — If USB drivers will be installed, 5 MB free disk space
  - — Windows 95b, 98, 98SE, 2000, ME, NT, or XP (Note: Windows 95 requires the installation of the Winsock program, not included. Windows 95 and 98 do not support USB.)

— (Optional) An Ethernet hub or switch, if you wish to connect the router to several computers on an Ethernet network.

— For system configuration using the supplied web-based program: a web browser such as Internet Explorer Version 6.0 or later. Netscape is not supported.

Parts List

In addition to this document, your 6211 ADSL router should come with the following:

- 6211 ADSL router
- Power adapter
- Ethernet cable (RJ45, straight-through type)
- Phone cable (RJ11)
- USB cable

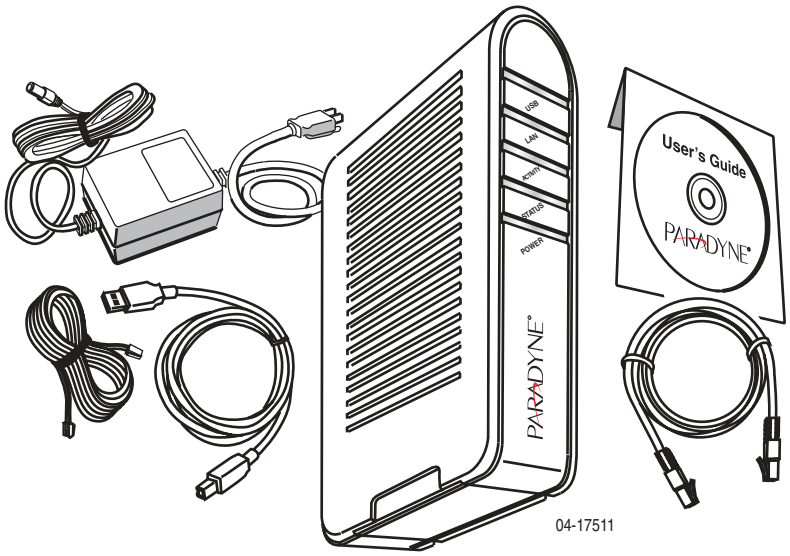

Figure 1: 6211 ADSL Router Package Contents

Front Panel

The front panel contains LED indicators that show the status of the unit.

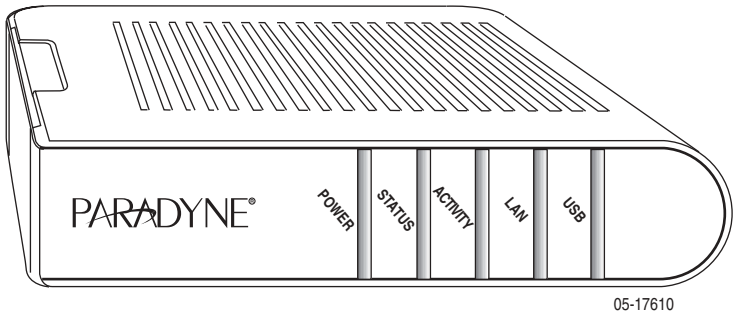

Figure 2: Front Panel LEDs

Table 1: Front Panel Label and LEDs

Label	Color	Function
POWER	Green	On: Unit is powered on
		Off: Unit is powered off
STATUS	Green	On: ADSL link is established and active
		Flashing: Trying to create an ADSL connection
		Off: No ADSL link
ACTIVITY	Green	Flashing: ADSL data transfer
LAN	Green	On: LAN link is established
		Flashing: Data transfer at LAN connection
		Off: No LAN link
USB	Green	On: USB link is established
		Off: No USB link

Rear Panel

The rear panel contains the ports for the router's data and power connections.

Table 2: Rear Panel Labels and Connectors

Label	Function
LINE	Connects to your ADSL line
PHONE (Model 6211-I3-x0x)	Connects to your telephone
USB	USB outlet, for PC USB port connection
LAN	Connects the CPE to your PC's Ethernet port, or to the uplink port on your LAN's hub or switch, using the cable provided
RESET/DEFAULT	To reset the router to its default settings
POWER	Connects to the supplied power adapter

2 HARDWARE INSTALLATION AND PC SETUP

Overview

This chapter provides basic instructions for connecting the router to a computer or a LAN and to the Internet using DSL. The first part provides instructions to set up the hardware, and the second part describes how to prepare your PC for use with the router.

It is assumed that you have already subscribed to DSL service with your Internet service provider (ISP).

Connecting the Hardware

Caution

Shut down your PC and any other equipment before connecting it to the router.

To connect your router:

1. Connect your ADSL line to the port labeled LINE on the rear panel of the device.
2. For routers with a phone port (model numbers of the form 6211-I3-x0x), optionally connect your telephone to the port labeled PHONE.
3. Connect your PC or a LAN:
   - Use the supplied Ethernet cable to connect your PC directly to the router. Connect one end of the Ethernet cable to the port labeled LAN on the router and connect the other end to the Ethernet port of your computer.
   - Alternatively, use the supplied USB cable to connect your PC directly to the router. Connect one end of the USB cable to the port labeled USB on the router and connect the other end to a free USB port on your PC. Install the USB drivers as described in the user's guide on the CD.
   - If your LAN has more than one computer, you can attach one end of an Ethernet cable to a hub or a switch and the other to the LAN port of the router. Either a crossover or straight-through Ethernet cable can be used.

4. Connect the AC power adapter to the POWER connector on the back of the device and plug the adapter into a wall outlet or power strip.

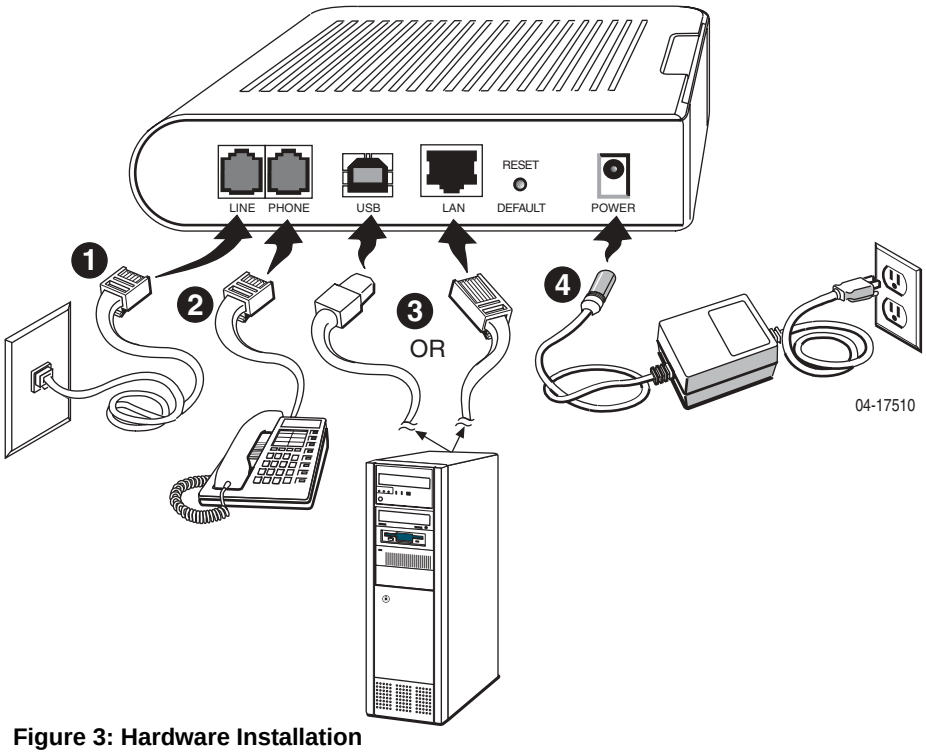

Figure 3: Hardware Installation

5. Turn on and boot up your PC and any LAN devices, such as hub or switches, and any computers connected to them.
6. Verify that the router's LEDs are illuminated as shown in Table 3.

Table 3: LED Indicators (Sheet 1 of 2)

This LED . . .	Should be:
POWER	Solid green to indicate that the device is turned on. If this light is not on, check if the power adapter is attached to the router and plugged into an AC power source.
STATUS	Solid green to indicate that the router can communicate with your ISP via ADSL, or flashing when the router is trying to connect to your ISP.
ACTIVITY	Flashing when the device is sending or receiving data over the ADSL connection.

Table 3: LED Indicators (Sheet 2 of 2)

This LED . . .	Should be:
LAN	Solid green to indicate that the device can communicate with your PC via Ethernet, or flashing when the router is sending or receiving data over Ethernet.
USB	Solid green when connected, flashing when the router is sending or receiving data.

If the LEDs are illuminated as expected, the router is working properly.

Installing the USB Driver

The following section applies only if you use the USB connector on the router. If you connect the USB cable between your PC and the router, Windows detects the new hardware and the Found New Hardware Wizard appears on your PC monitor. Follow this procedure:

1 Choose "Install from a list or specific location" from the Wizard's menu, then click on Next.

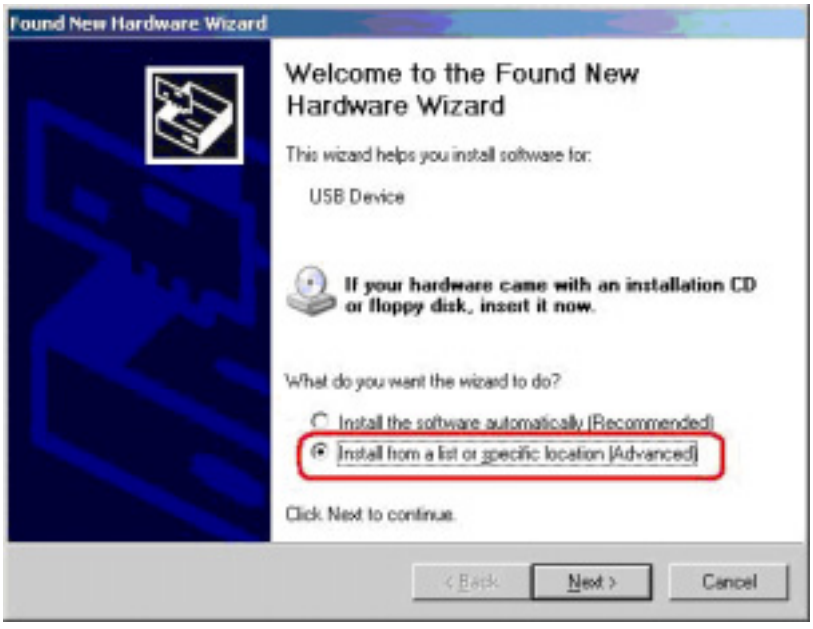

Figure 4: Found New Hardware Wizard

2 Insert the supplied CD ROM and use Browse to include the CD drive in the search.

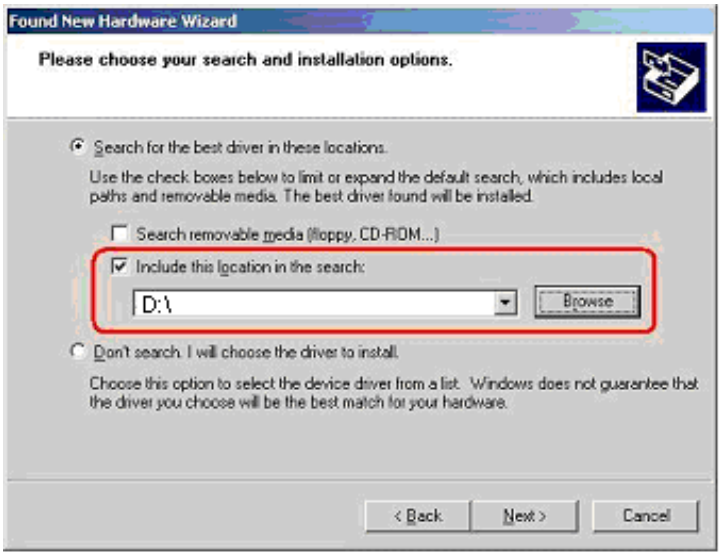

Figure 5: Search and Installation Options

3 If the Wizard reports a compatibility issue, select "Continue Anyway". Installation of the USB driver proceeds.

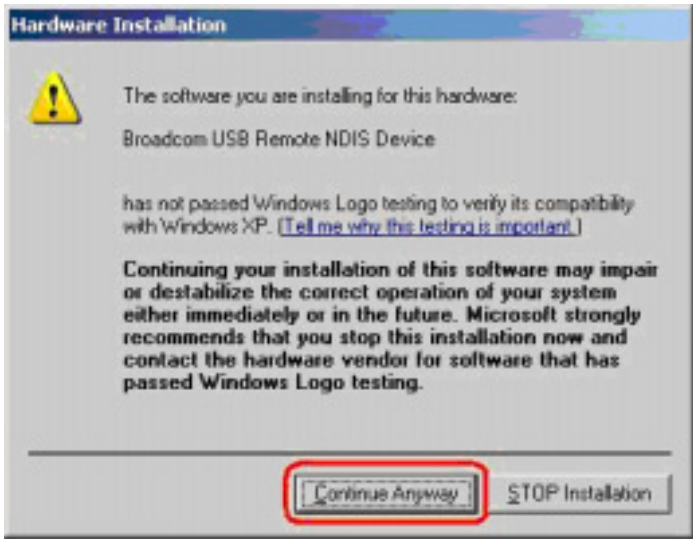

Figure 6: Compatibility Warning

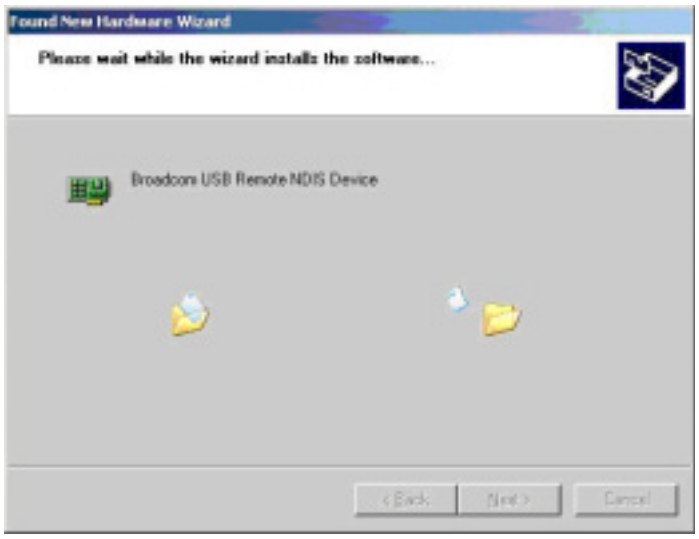

Figure 7: Progress Screen

4. When prompted, click on Finish to close the Wizard.

Figure 8: Completion Screen

Configuring Your Computer

Before you can access the router over the LAN or the USB port, you have to configure your PC's TCP/IP address to be 192.168.1.x (where x is any number between 3 and 254), with a subnet mask of 255.255.255.0. Your router's default IP address is 192.168.1.1.

Windows XP PCs

1. In the Windows task bar, click on the Start button, and then click on Control Panel.
2. Double-click on the Network Connections icon.
3. In the LAN or High-Speed Internet window, right-click on the icon corresponding to your network interface card (NIC) or USB connection, and select Properties. (Often this icon is labeled Local Area Connection). The Local Area Connection dialog box displays with a list of currently installed network items.
4. Ensure that the check box to the left of the item labeled Internet Protocol (TCP/IP) is checked, and click on Properties.

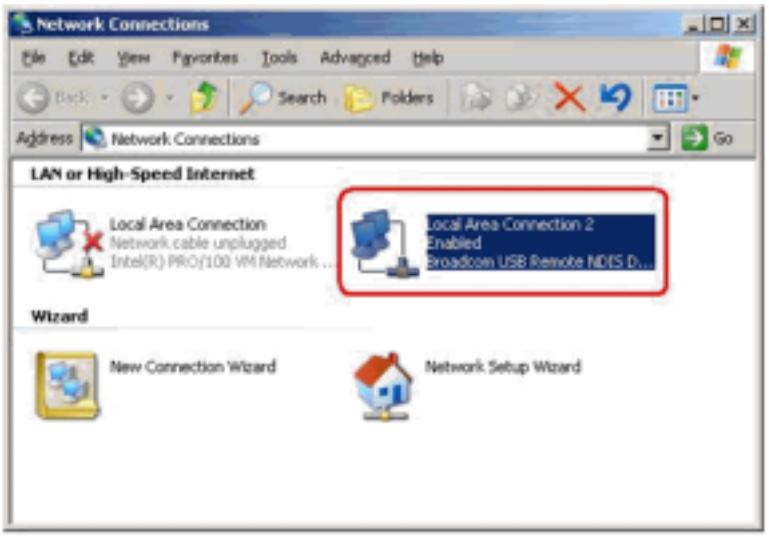

Figure 9: Network Connections (Windows XP)

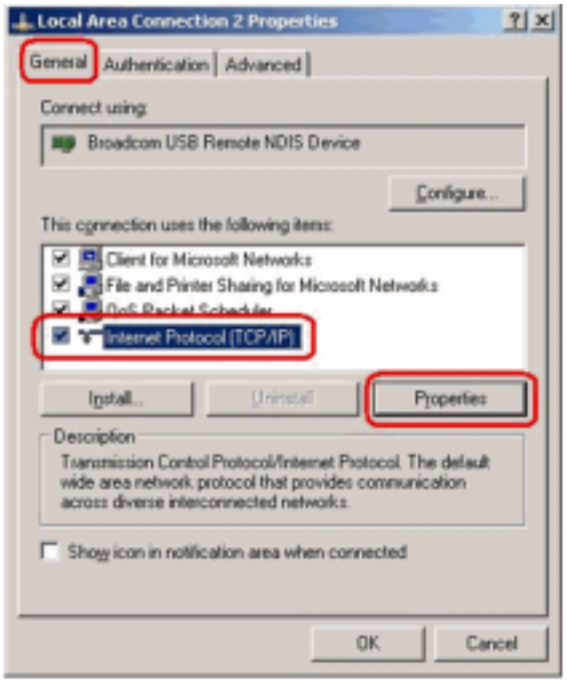

Figure 10: Local Area Connection Properties (Windows XP)

5 In the Internet Protocol (TCP/IP) Properties dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field (192.168.1.20 is shown here as an example) and 255.255.255.0 in the Subnet Mask field.

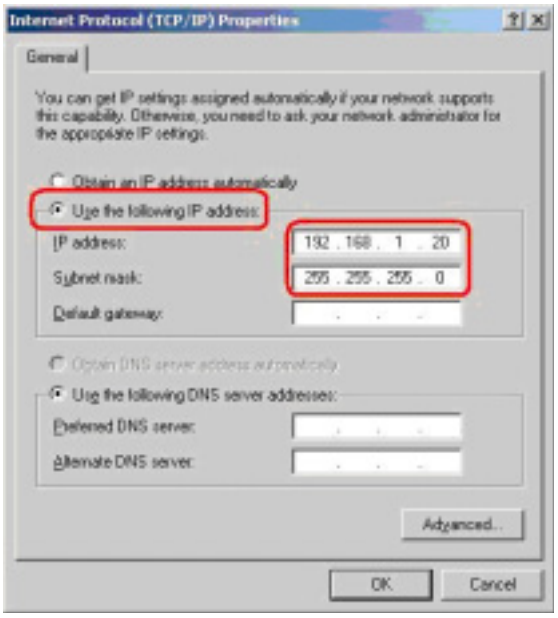

Figure 11: TCP/IP Properties (Windows XP)

6. Click on OK twice to confirm your changes, and close the Control Panel.

Windows 2000 PCs

1. In the Windows task bar, click on the Start button, point to Settings, and then click on Control Panel.
2. Double-click on the Network and Dial-up Connections icon.
3. In the Network and Dial-up Connections window, right-click on the Local Area Connection icon, and then select Properties.

   The Local Area Connection Properties dialog box display a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), the protocol has already been enabled; skip to Step 10.
4. If Internet Protocol (TCP/IP) does not appear as an installed component, click on Install.
5. In the Select Network Component Type dialog box, select Protocol, and then click on Add.
6. Select Internet Protocol (TCP/IP) in the Network Protocols list, and then click on OK.

   You may be prompted to install files from your Windows 2000 installation CD or other medium. Follow the instructions to install the files.
7. If prompted, click on OK to restart your computer with the new settings.
8. After restarting your PC, double-click on the Network and Dial-up Connections icon in the Control Panel.
9. In Network and Dial-up Connections window, right-click on the Local Area Connection icon, and then select Properties.
10. In the Local Area Connection Properties dialog box, select Internet Protocol (TCP/IP), and then click on Properties.
11. In the Internet Protocol (TCP/IP) Properties dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.
12. Click on OK twice to confirm and save your changes, and then close the Control Panel.

Windows ME PCs

1. In the Windows task bar, click on the Start button, point to Settings, and then click on Control Panel.
2. Double-click on the Network and Dial-up Connections icon.
3. In the Network and Dial-up Connections window, right-click on the Network icon, and then select Properties.

The Network Properties dialog box displays a list of currently installed network components. If the list includes Internet Protocol (TCP/IP), the protocol has already been enabled; skip to Step 11.

4. If Internet Protocol (TCP/IP) does not appear as an installed component, click on Add.
5. In the Select Network Component Type dialog box, select Protocol, and then click on Add.
6. Select Microsoft in the Manufacturers box.
7. Select Internet Protocol (TCP/IP) in the Network Protocols list, and then click on OK.

   You may be prompted to install files from your Windows Me installation CD or other media. Follow the instructions to install the files.
8. If prompted, click on OK to restart your computer with the new settings.
9. After restarting your PC, double-click on the Network and Dial-up Connections icon in the Control Panel.
10. In Network and Dial-up Connections window, right-click on the Network icon, and then select Properties.
11. In the Network Properties dialog box, select TCP/IP, and then click on Properties.
12. In the TCP/IP Settings dialog box, click on the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.
13. Click on OK twice to confirm and save your changes, and then close the Control Panel.

Windows 95 and Windows 98 PCs

1. In the Windows task bar, click on the Start button, point to Settings, and then click on Control Panel.
2. Double-click on the Network icon.

   The Network dialog box displays a list of currently installed network components. If the list includes TCP/IP, the protocol has already been enabled. Skip to step 9.
3. If TCP/IP does not appear as an installed component, click on Add. The Select Network Component Type dialog box appears.
4. Select Protocol, and then click on Add.

   The Select Network Protocol dialog box appears.
5. Click on Microsoft in the Manufacturers list box, and then click on TCP/IP in the Network Protocols list box.
6. Click on OK to return to the Network dialog box, and then click on OK again.

You may be prompted to install files from your Windows 95/98 installation CD. Follow the instructions to install the files.

7 Click on OK to restart the PC and complete the TCP/IP installation.

8 After restarting your PC, open the Control Panel window, and then click on the Network icon.

9 Select the network component labeled TCP/IP, and then click on Properties.

If you have multiple TCP/IP listings, select the listing associated with your network card or adapter.

10 In the TCP/IP Properties dialog box, click on the IP Address tab.

11 Click in the radio button labeled Use the following IP address. Type an address between 192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.

12 Click on OK twice to confirm and save your changes. You will be prompted to restart Windows. Click on Yes.

Windows NT 4.0

1 In the Windows NT task bar, click on the Start button, point to Settings, and then click on Control Panel.

2 In the Control Panel window, double click on the Network icon.

3 In the Network dialog box, click on the Protocols tab.

The Protocols tab displays a list of currently installed network protocols. If the list includes TCP/IP, the protocol has already been enabled. Skip to Step 9.

4 If TCP/IP does not appear as an installed component, click on Add.

5 In the Select Network Protocol dialog box, select TCP/IP, and then click on OK.

You may be prompted to install files from your Windows NT installation CD or other medium. Follow the instructions to install the files.

After all files are installed, a window appears to inform you that a TCP/IP service called DHCP can be set up to dynamically assign IP information.

6 Click on Yes to continue, and then click on OK, if prompted, to restart your computer.

7 After restarting your PC, open the Control Panel window, and then double-click on the Network icon.

8 In the Network dialog box, click on the Protocols tab.

9 In the Protocols tab, select TCP/IP, and then click on Properties.

10 In the Microsoft TCP/IP Properties dialog box, click on the radio button labeled Use the following IP address. Type an address between

192.168.1.3 and 192.168.1.254 in the IP Address field and 255.255.255.0 in the Subnet Mask field.

11 Click on OK twice to confirm and save your changes, and then close the Control Panel.

Logging in to Your Router

This section shows how to connect to the router's web interface, configure settings, and observe some statistics of your Internet connection.

1 Open your Web browser, and type the following URL in the address/location box, and press Enter:

http://192.168.1.1

This is the default IP address for the LAN port on the router.

A login screen appears.

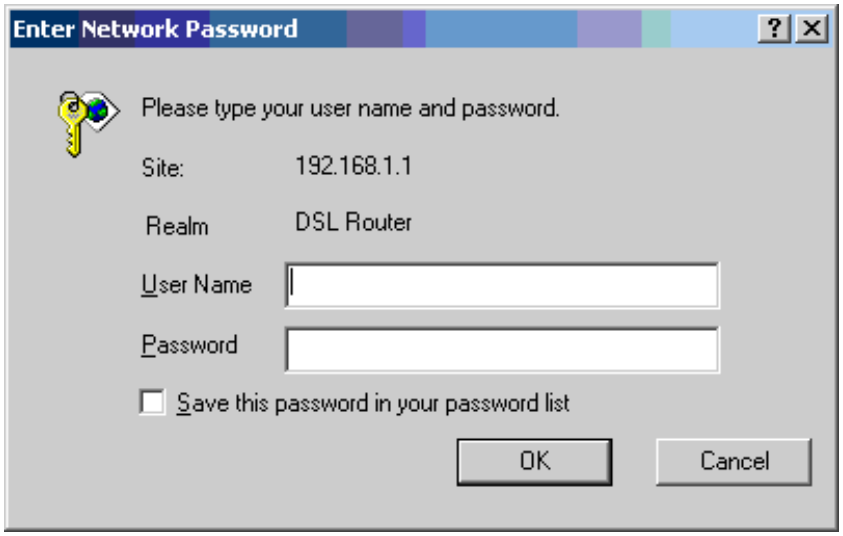

Figure 12: Login Screen

If you have problem connecting to the router, verify that your PC is properly configured within the subnet of the router's default IP address 192.168.1.1. Setup is described in *Configuring Your Computer on page 22*.

2 Enter your user name and password, and then click on OK to display the home page of the router's web interface. There are two default user name and password combinations:

Table 4: Default User Names and Passwords

User Name	Password	Capability
user	user	Can display device status, but cannot change or save configuration options.
admin	admin	Can perform all functions.

You can change the passwords at any time.

The home page is shown in Figure 13.

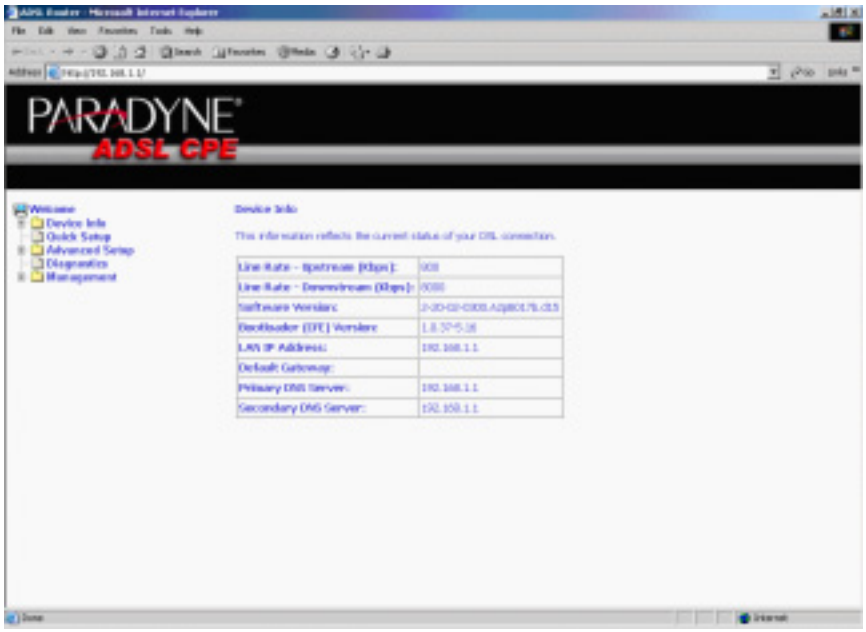

Figure 13: Web Interface Home Page

3 DEVICE INFORMATION

Status Summary

Display the general status report for the router by clicking on Summary under Device Info (Figure 14).

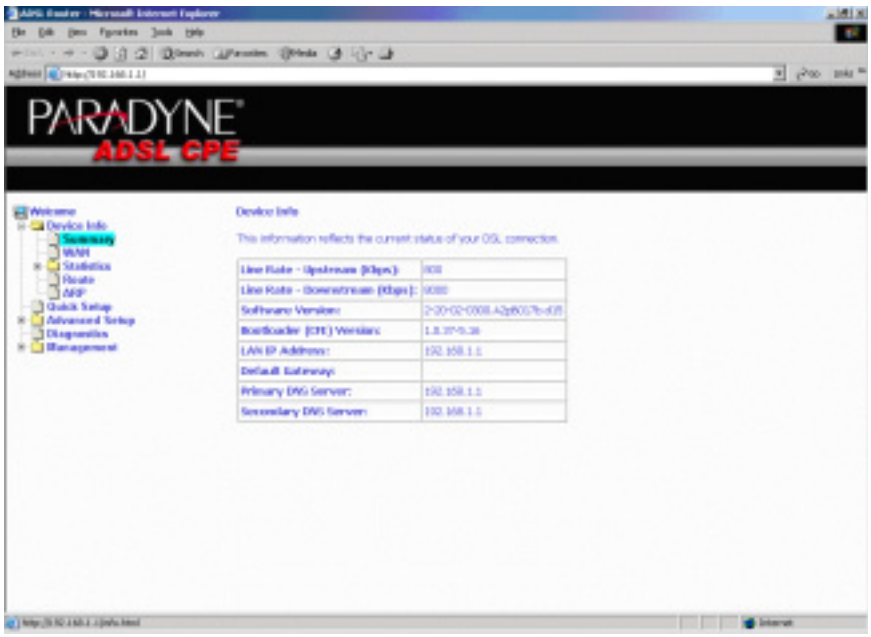

Figure 14: Status Summary

WAN

Display the WAN status report from the by clicking on WAN under Device Info (Figure 15).

Figure 15: WAN Status

LAN Statistics

Display LAN statistics by clicking on LAN under Statistics (Figure 16).

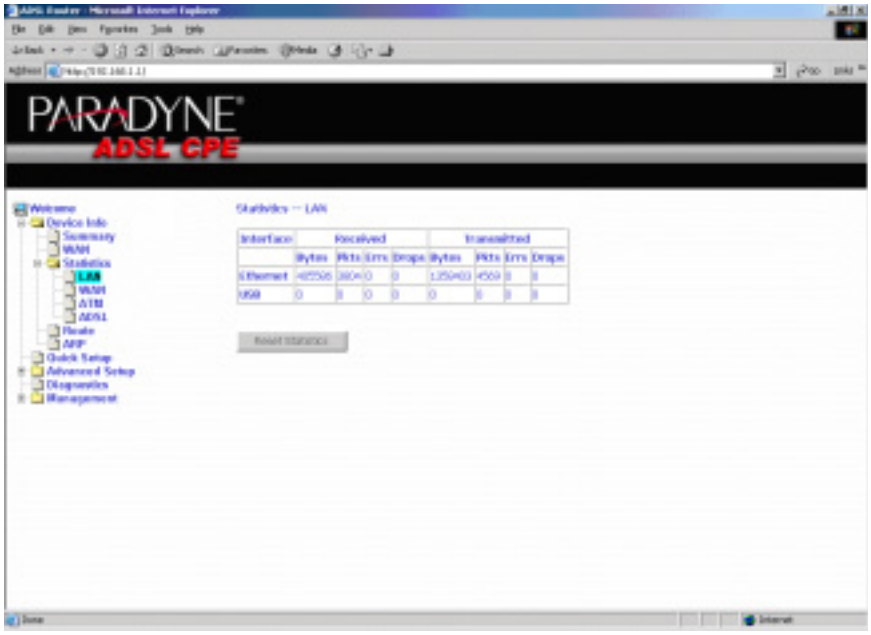

Figure 16: LAN Statistics

WAN Statistics

Display WAN statistics by clicking on WAN under Statistics (Figure 17).

Figure 17: WAN Statistics

ATM Statistics

Display ATM statistics by clicking on ATM under Statistics (Figure 18).

Figure 18: ATM Statistics

ADSL Statistics

Display ADSL statistics by clicking on ADSL under Statistics (Figure 19).

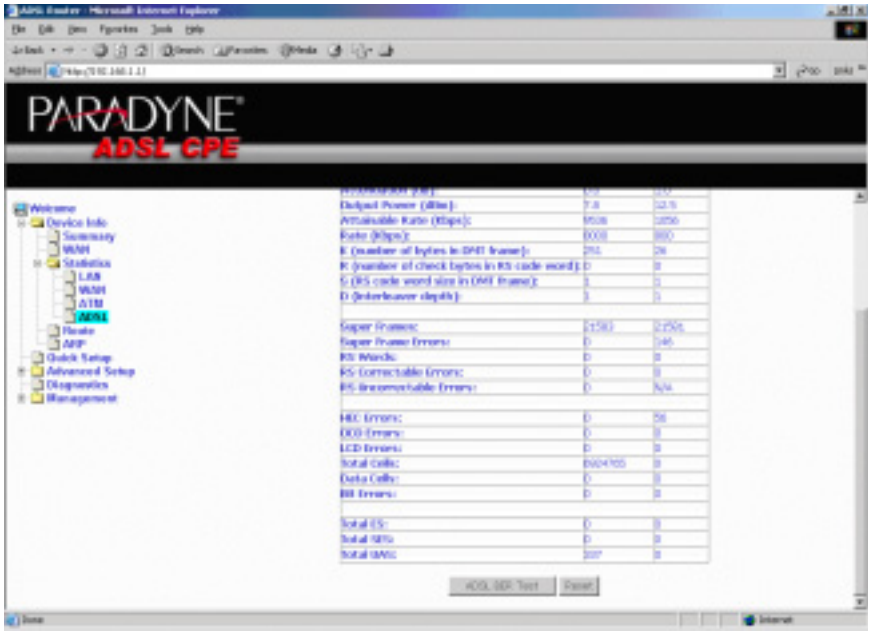

Figure 19: ADSL Status

ADSL BER Test

The ADSL Bit Error Rate (BER) test determines the quality of the ADSL connection. The test is performed by transferring idle cells containing a known pattern and comparing the received data with this known pattern to check for any errors (Figure 20 and Figure 21).

To run a BER test:

1. Click on the ADSL BER Test button.
2. Select the test duration and click on Start
3. Check the result.

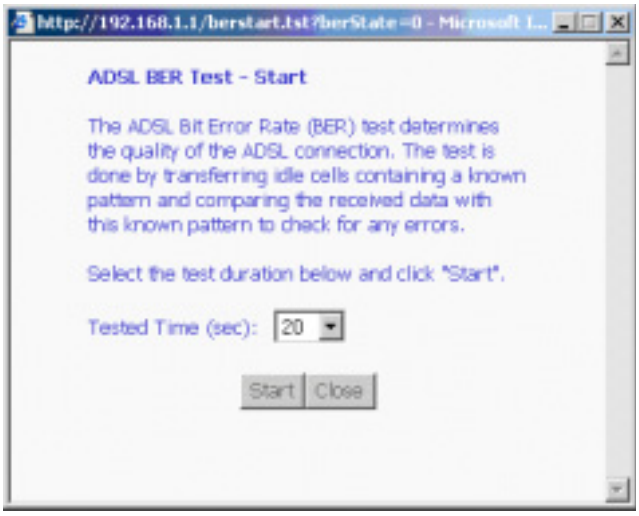

Figure 20: ADSL BER Test — Start

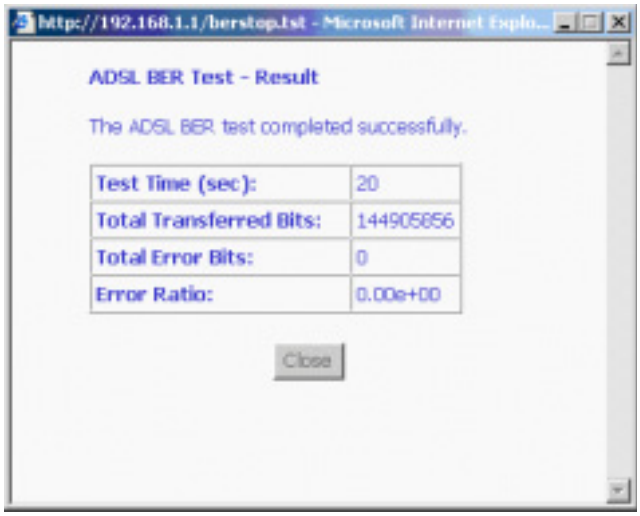

Figure 21: ADSL BER Test — Result

Route

Obtain the Routing status report by clicking on the Route item under Device Info (Figure 22)

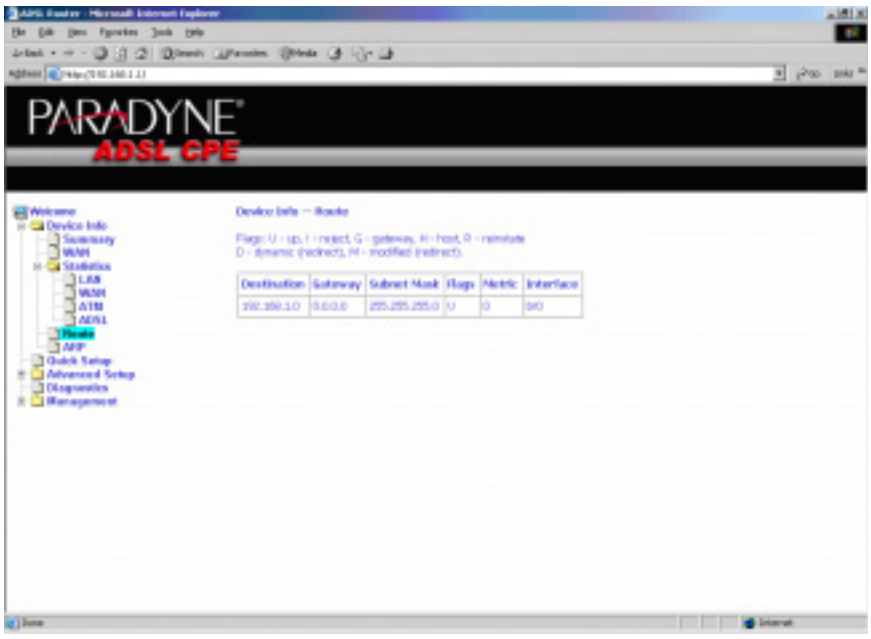

Figure 22: Route Information

ARP

Display the ARP status report by clicking on ARP under Device Info (Figure 23)

Figure 23: ARP Status

4 QUICK SETUP

Quick Setup with Auto-Connect Enabled

Auto-connect will automatically detect the first usable PVC and automatically detect PPPoE, PPPoA, and Bridge Protocol (with DHCP Server available). To use auto-connect:

1 Select Quick Setup. The Quick Setup initial screen appears.

Figure 24: Quick Setup Initial Screen

2 Select DSL Auto-Connect, then click on Next. The progress information screen appears.

Figure 25: Detecting Available PVC

Figure 26: Detecting available PVC – Available PVC Detected

Quick Setup with Auto-Connect Disabled

1 Select Quick Setup. The Quick Setup initial screen appears.

Figure 27: Specifying VPI and VCI

2 Verify that DSL Auto-Connect is not selected. Specify VPI and VCI as directed by your ISP. Click on Next.

3 Use Advanced Setup to configure the PVC.

5 Advanced Setup

WAN

Set up WAN parameters as directed by your ISP.

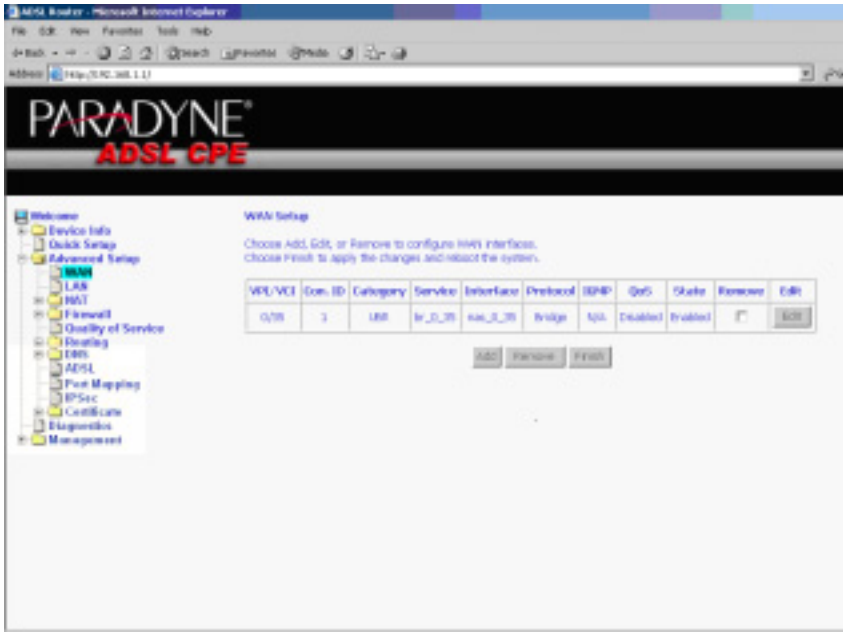

Figure 28: WAN Setup Screen

Add Function – ATM PVC Configuration

If you want to add a new rule for the WAN interface, click on the Add button. The ATM PVC Configuration screen appears. The ATM PVC Configuration screen allows you to configure an ATM PVC identifier (VPI and VCI) and select a service category.

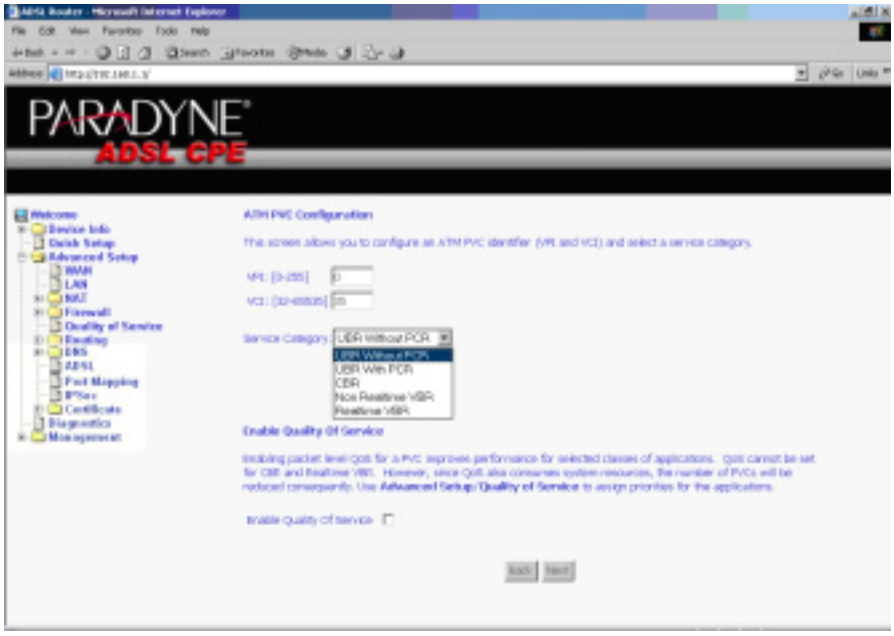

Figure 29: ATM PVC Configuration Screen

Verify the following values with your ISP before you change them.

- VPI (Virtual Path Identifier) – The valid range is 0 to 255.
- VCI (Virtual Channel Identifier) – The valid range is 32 to 65535.
- Service Category – Five classes of traffic defined are defined:
  - UBR Without PCR
  - UBR With PCR
  - CBR
  - Non-Realtime VBR
  - Realtime VBR

Connection Type Screen

Select the type of network protocol and encapsulation mode over the ATM PVC that your ISP has instructed you to use, then click on Next button.

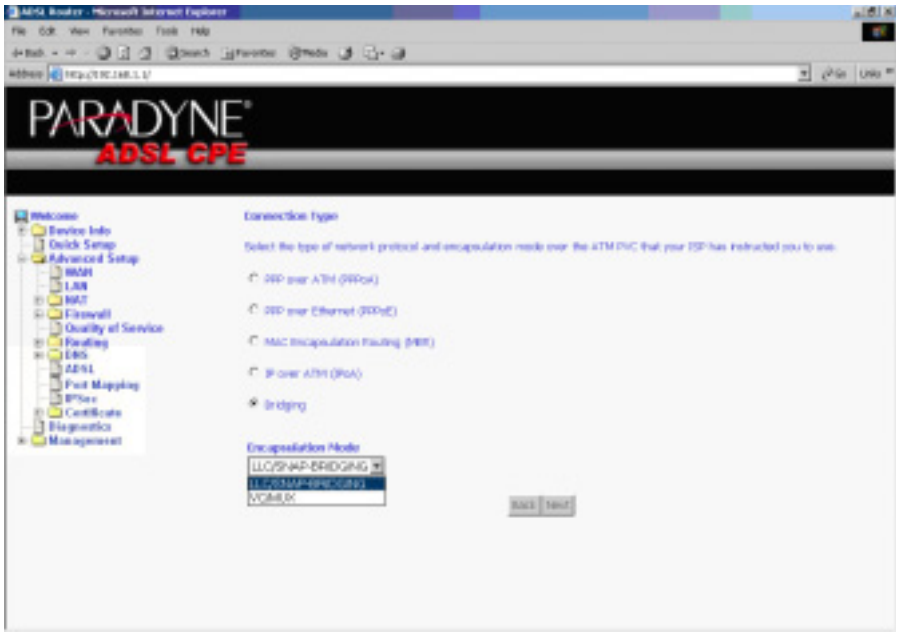

Figure 30: Connection Type Screen

Select a connection type and click on Next.

Bridge Service and Quality of Service Screen

This WAN service can be enabled or disabled by clicking in the check box.

Enabling QoS for a PVC improves performance for selected classes of applications. However, since QoS also consumes system resources, the number of PVCs is reduced. The default setting for QoS is disabled. If you want to enable QoS service, select the "Enable Quality Of Service" check box.

After finishing steps as above, click on the Next button.

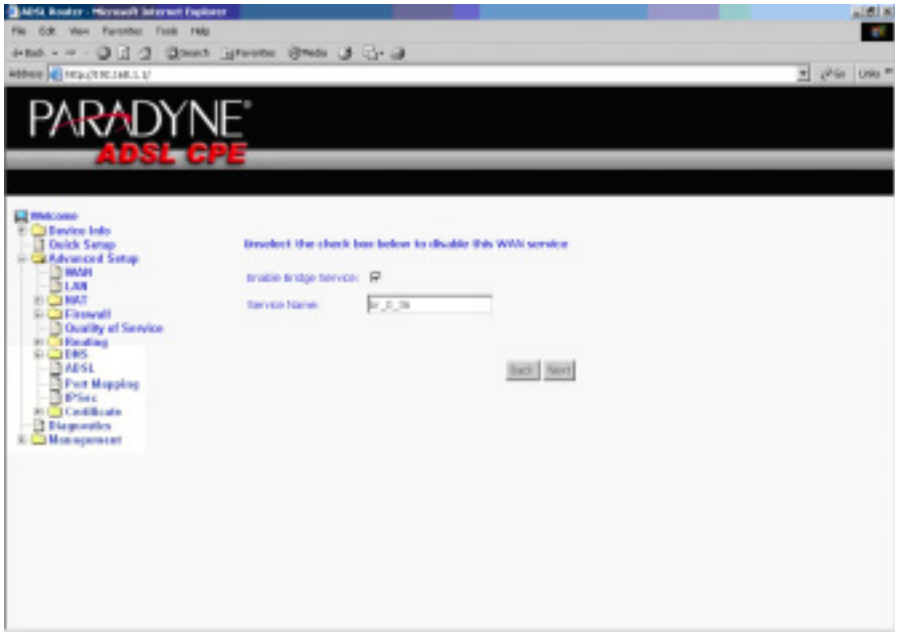

Figure 31: Enable Bridge Service

WAN Setup - Summary

Make sure that the settings on the WAN Setup screen match the settings provided by your ISP. If all settings are correct, click on the Save button to save these settings; if not, click on the Back button to make any modifications. If you want to change any item after saving, click on the Edit button to make any modifications.

Figure 32: WAN Setup Summary

Note

Activate this WAN interface by clicking on the Finish button and further configuring services over this interface. The router supports up to five WAN connections.

Remove Function

If you want to delete a connection from the listed WAN setup, click in the Remove check box next to the item, then click on the Remove button.

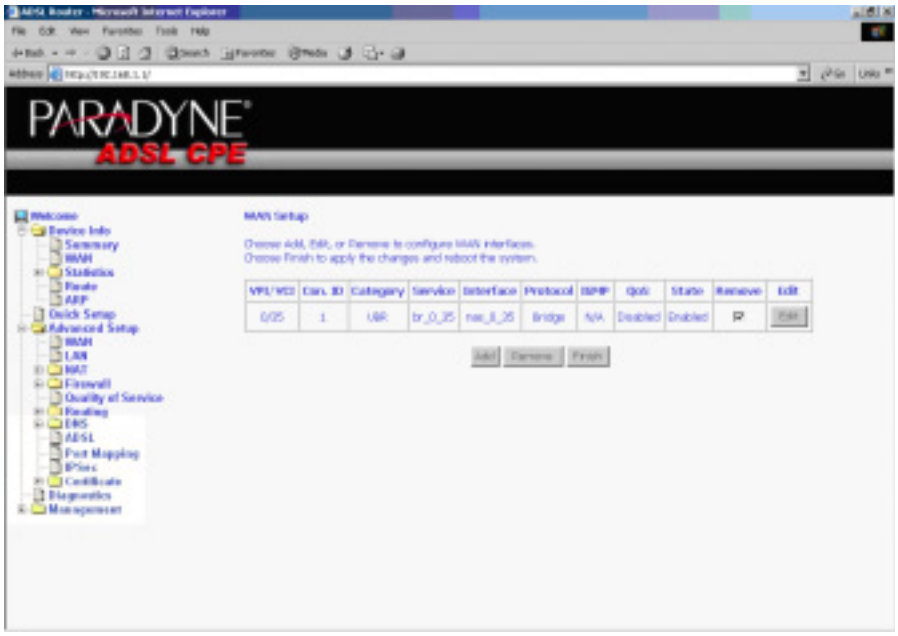

Figure 33: WAN Setup List

Finish Function

After you change any item in WAN Setup, remember to click on the Finish button to apply the changes and reboot the system.

Local Area Network (LAN) Setup

You can configure the DSL Router IP address and Subnet Mask for the LAN interface to conform your LAN's IP Subnet. The Save button only saves the LAN configuration data. The Save/Reboot button saves the LAN configuration data and reboots the router to make the new configuration effective.

Figure 34: LAN Setup

NAT

You can configure the Virtual Server, Port Triggering, and DMZ Host when NAT is enabled.

Virtual Servers

A virtual server allows you to direct incoming traffic from the WAN side to a specific IP address on the LAN side. Click on the Add button to add a virtual server.

Figure 35: NAT Virtual Server Setup

You can select a Service or make new one. Enter the Server IP Address, then click on Save/Apply to submit your configuration.

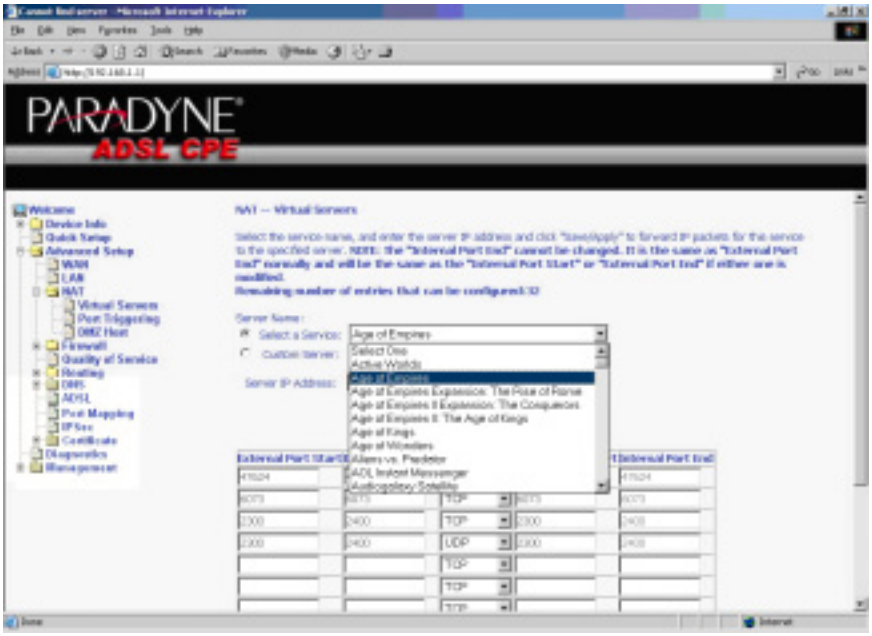

Figure 36: Virtual Server Add Screen

On this screen you can view and delete servers. Click in the check box under Remove and click on the Remove button to delete selected virtual servers.

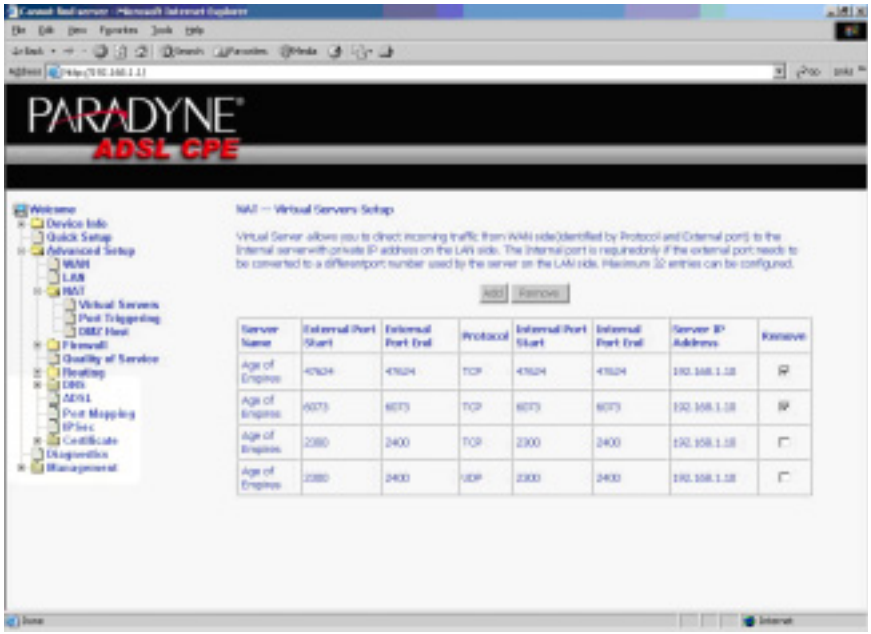

Figure 37: Removing Selected Virtual Servers

Port Triggering

Click the on the Add button to add Port Triggering for your Internet application.

Figure 38: Port Triggering Setup Page

You can select an application every time or create new one for your application. Then click on Save/Apply to save your settings.

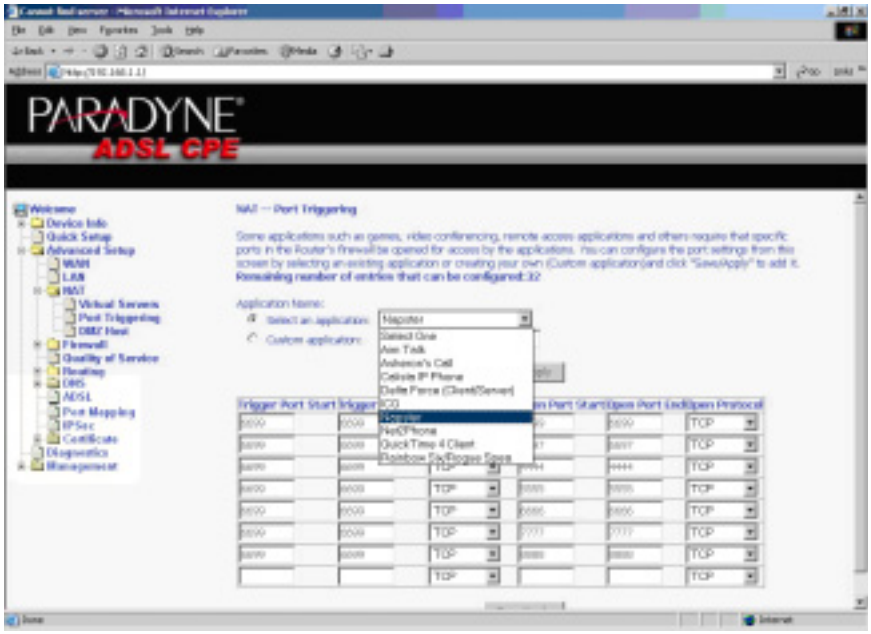

Figure 39: Port Triggering Add Page

On this screen you can view and delete applications. Click in the check box under Remove and click on the Remove button to delete selected applications.

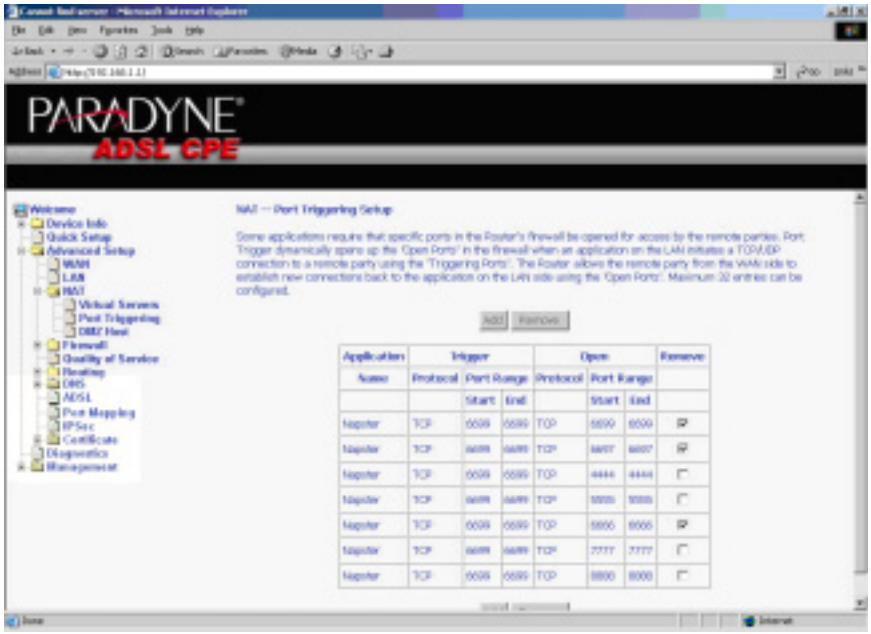

Figure 40: Port Triggering List

DMZ Host

You can define the IP address of the DMZ Host on this screen. Enter the IP address and click on Save/Apply.

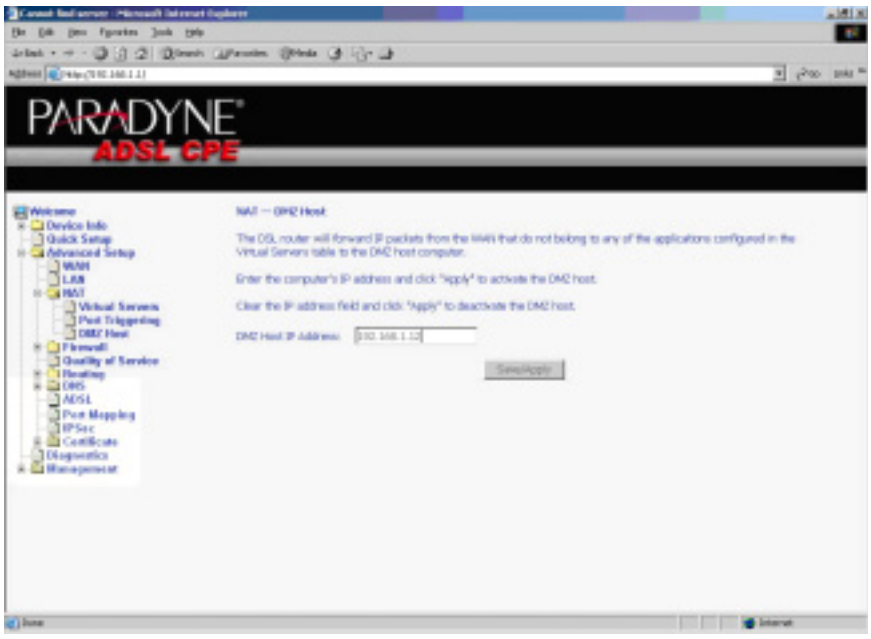

Figure 41: DMZ Host Setup

Firewall

For security reasons, firewall options can be configured only from the LAN side of the router.

IP Filtering – Outgoing

The outgoing filter will block the traffic from the LAN side to the WAN side. Click on Add to create filters.

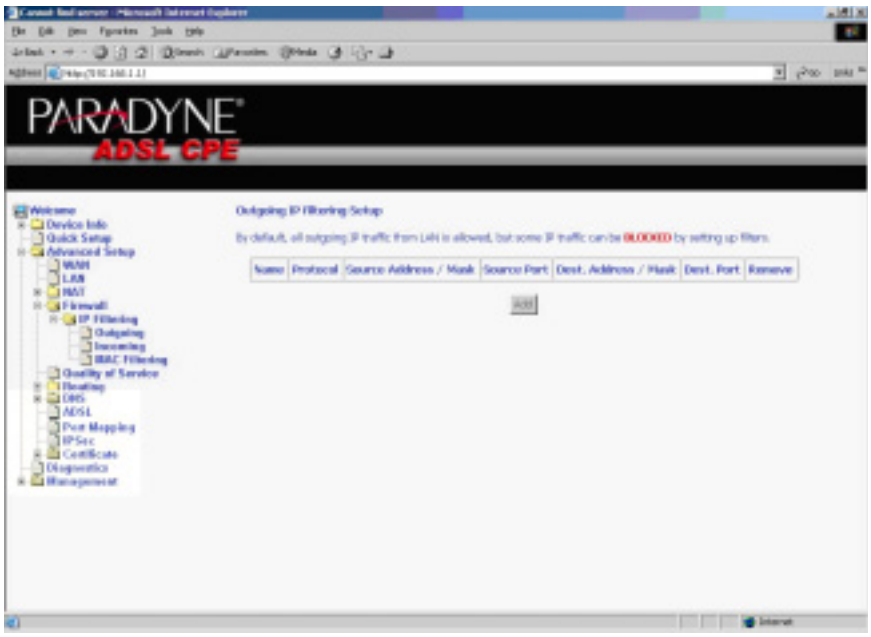

Figure 42: IP Filtering – Outgoing Filter Setup

Input the filter name, source information (from the LAN side), and Destination information (from the WAN side). Then click on Save/Apply.

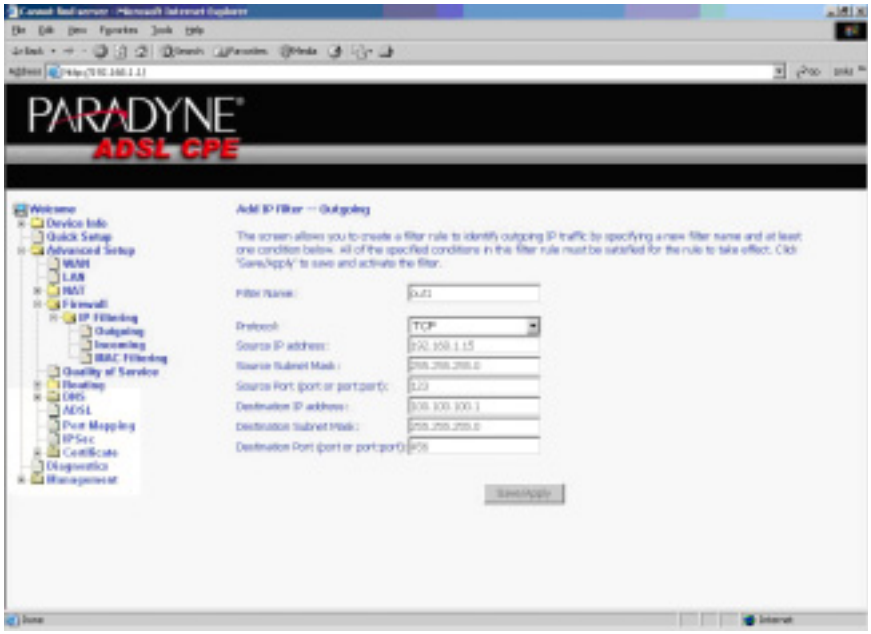

Figure 43: IP Filtering - Outgoing Filter Add Page

You can view and delete the outgoing filter settings on this screen.

Figure 44: IP Filtering - Outgoing Filter Setup List

IP Filtering – Incoming

Incoming filter filters the traffic from the WAN side to the LAN side. Click on Add to add incoming filter settings.

Figure 45: IP Filtering – Incoming Filter Setup Page

Enter a filter name, information about the source address (from the WAN side), and information about the destination address (to the LAN side). Select the protocol and WAN interface. Then click on Save/Apply to add the setting.

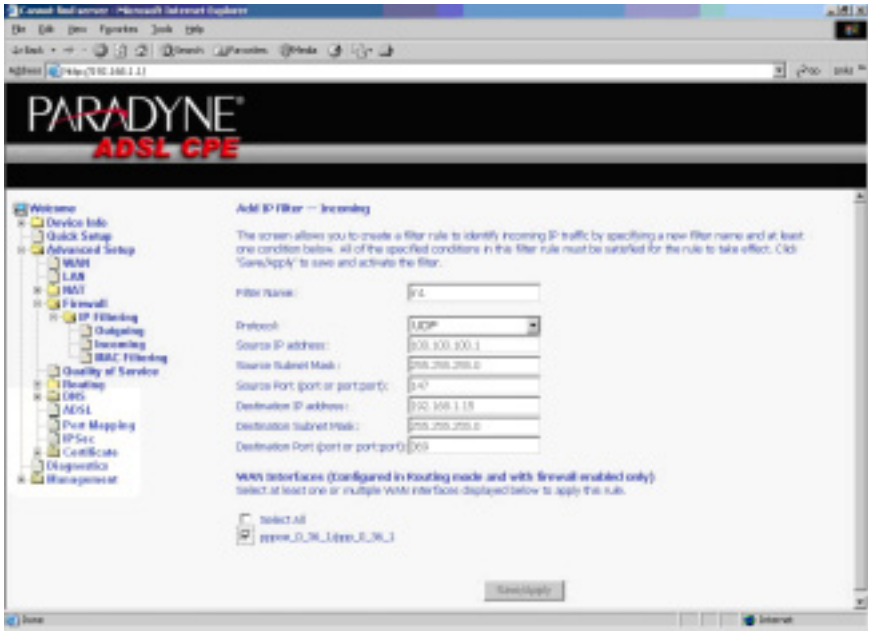

Figure 46: IP Filtering - Incoming Filter Add

You can view and delete the incoming filter settings from this screen.

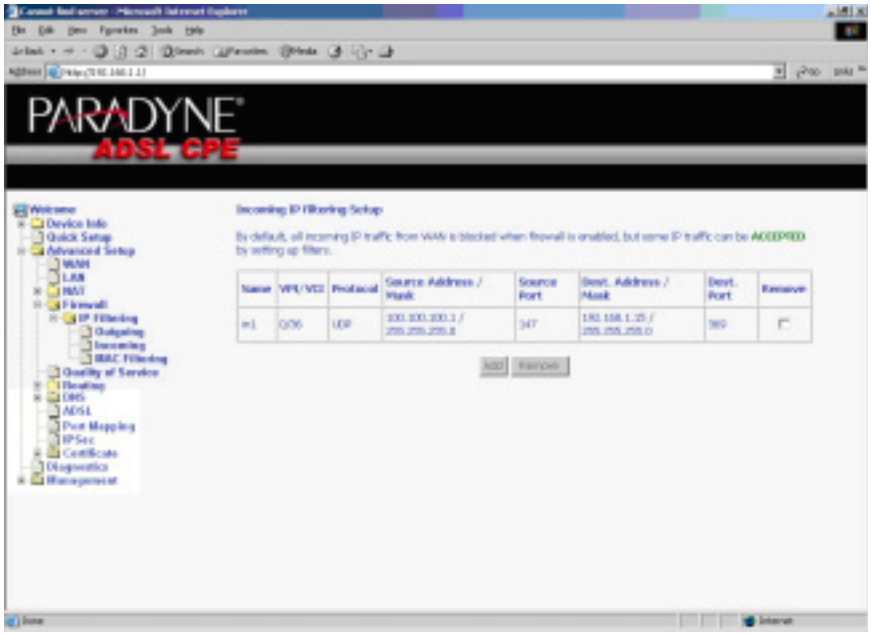

Figure 47: IP Filtering - Incoming Filtering List

Firewall – MAC Filtering

MAC filtering can forward or block traffic by MAC address. You can change the policy or add settings to the MAC filtering table using the MAC Filtering Setup screen.

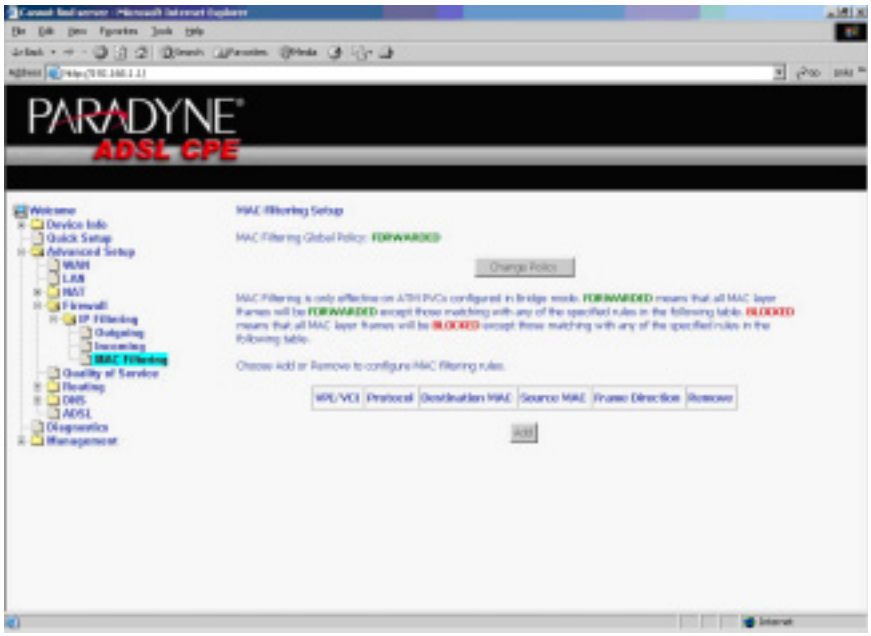

Figure 48: IP Filtering - MAC Filtering Setup

If you click on Change Policy, a confirmation dialog lets you verify your change.

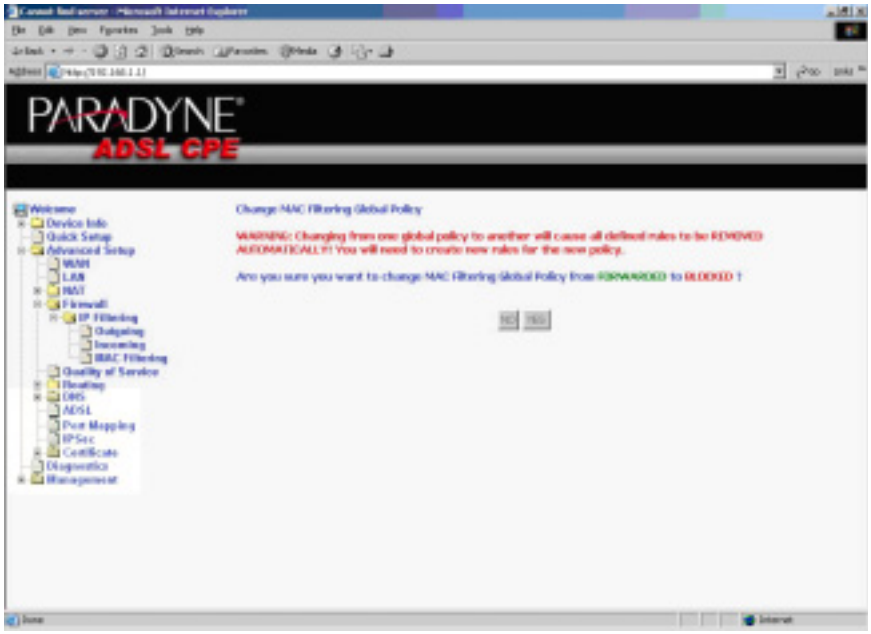

Figure 49: IP Filtering - MAC Filtering Policy Change Confirmation

If you want to add a setting to the MAC filtering table, enter the Source and Destination MAC address, and select protocol type, frame direction, and WAN interface. Then click on Save/Apply to save it.

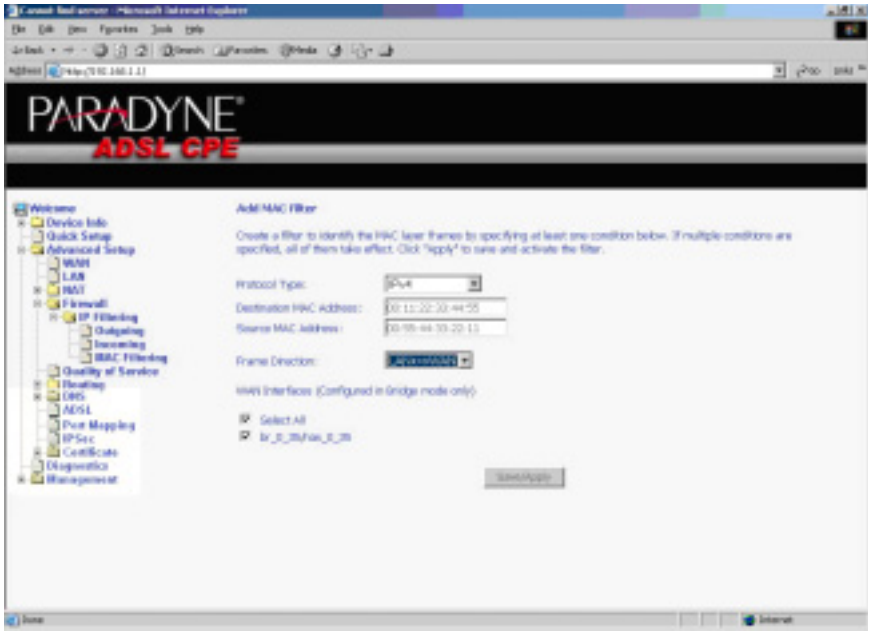

Figure 50: IP Filtering - MAC Filtering Add Page

On this screen you can view and delete MAC filtering rules.

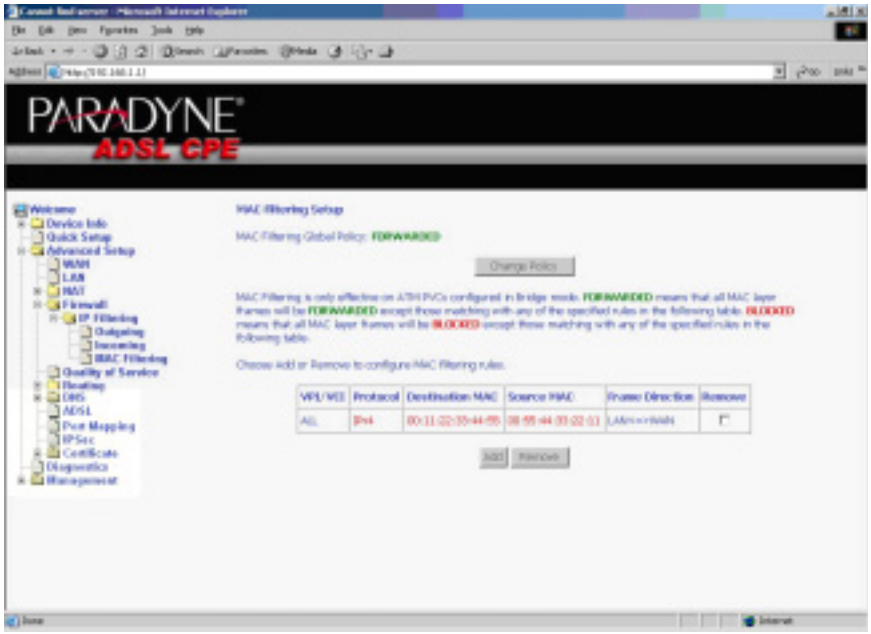

Figure 51: IP Filtering - MAC Filtering List

Parental Control

Use the Parental Control feature to restrict the days and times a particular device is allowed to access the Internet.

Figure 52: Parental Control Screen

To set up parental controls:

1. Click on Add. The Time of Day Restriction screen appears.

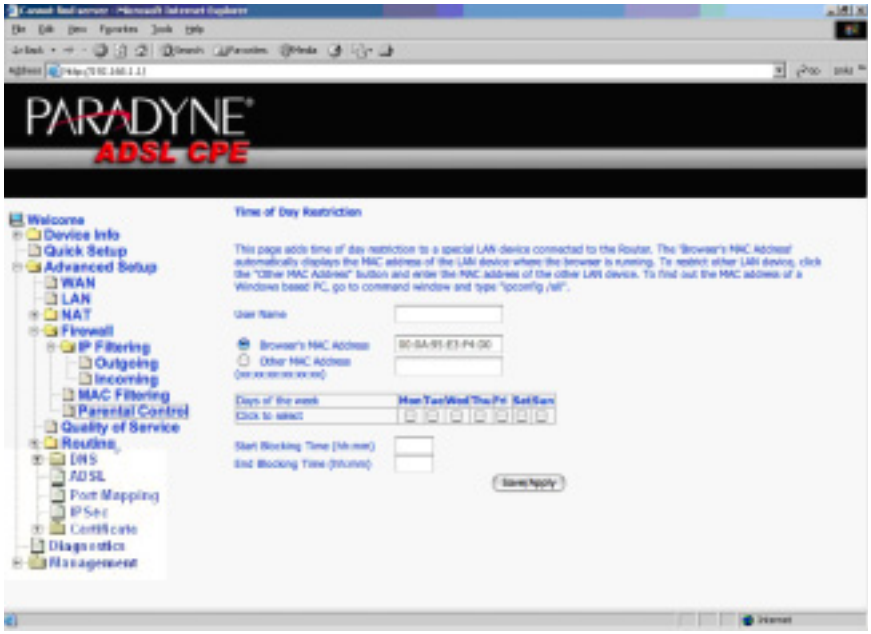

Figure 53: Parental Control – Time of Day Restrictions

2. Enter a User Name to identify the target of the restrictions.
3. Enter the MAC address of the network adapter to be restricted, and, optionally, another MAC address.
4. Select the days of the week the restriction is in force.
5. Specify the start and end times the restriction is in force. Use the form hh:mm, where 23:59, for example, is one minute before midnight.
6. Click on Save/Apply.

Quality of Service

You can configure the Quality of Service to apply different priorities to traffic on the router.

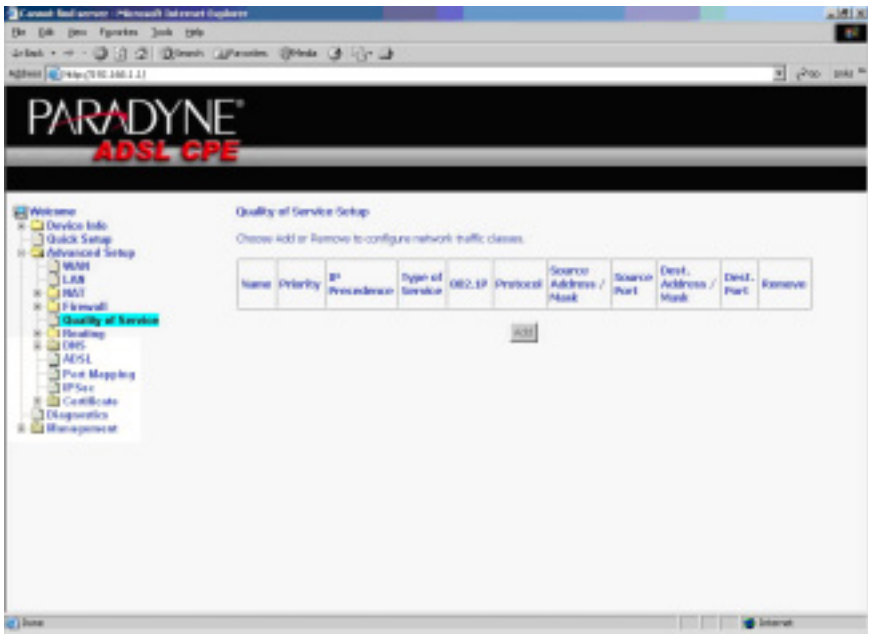

Figure 54: Quality of Service Setup

Click on Add and the Add Network Traffic Class Rule screen appears. Enter and select QoS parameters, then click on Save/Apply. Note that 802.1p Priority and TOS are mutually exclusive.

Figure 55: Quality of Service Add Screen

On this screen you can view and delete QoS settings.

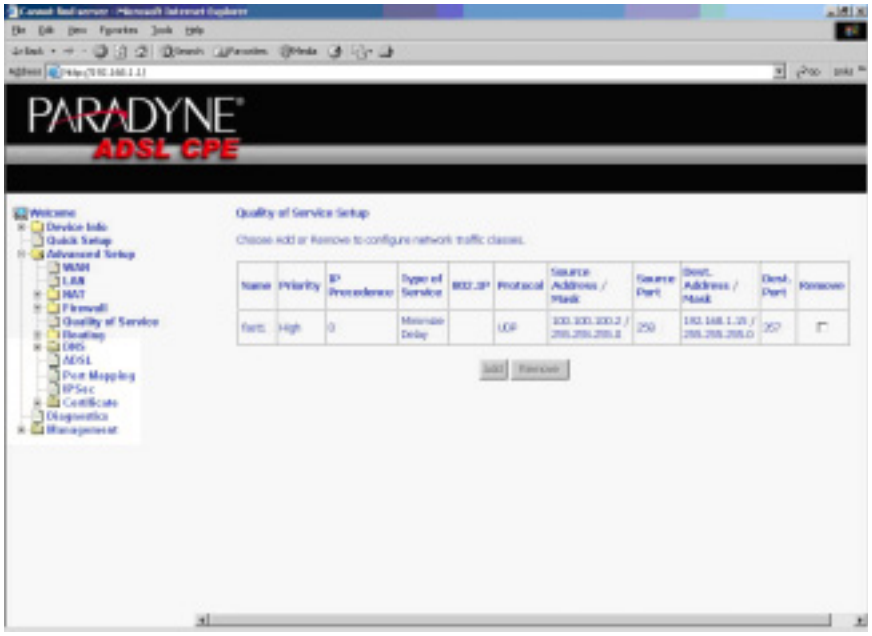

Figure 56: Quality of Service List

Routing – Default Gateway

You can change the Default Gateway on the Routing - Default Gateway screen.

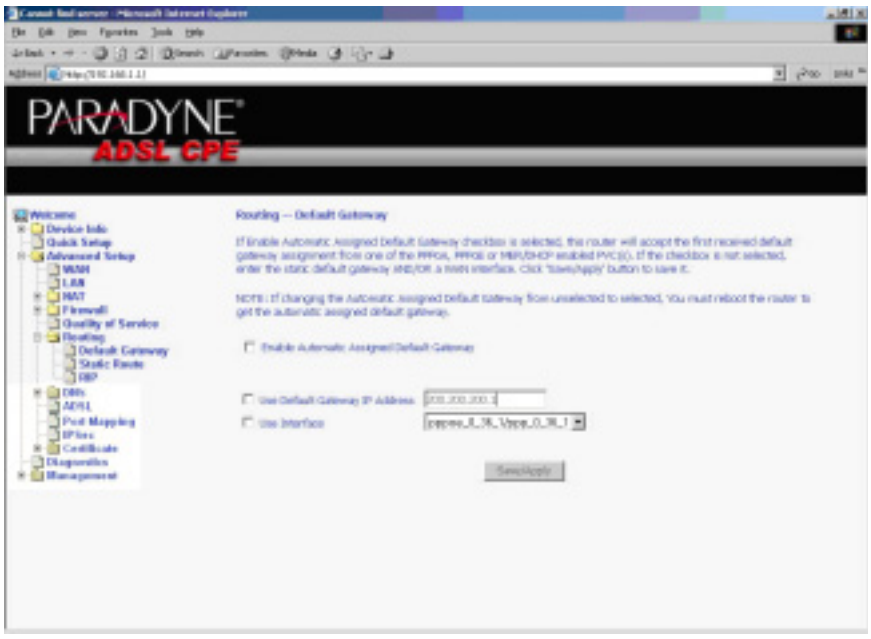

Figure 57: Default Gateway Setup

Routing – Static Route

Use the Routing - Static Route screen to add a static route to the routing table.

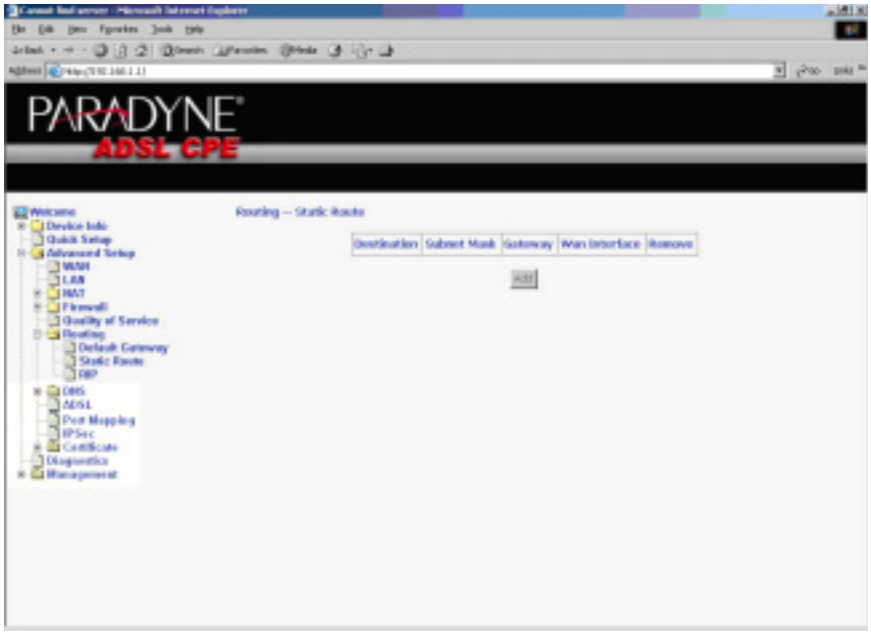

Figure 58: Static Route Setup

Enter the route information and click on Save/Apply to make it active. No reboot is required.

Figure 59: Static Route Add

Routing – RIP

If RIP is enabled, the router operation can be configured as Active or Passive.

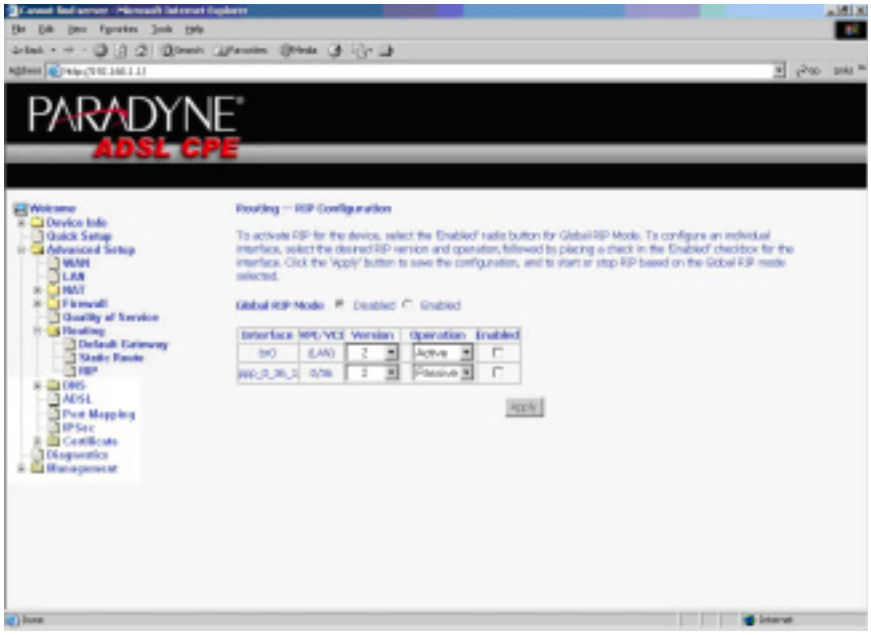

Figure 60: RIP Setup

DNS Server

Use the DNS Server screen to request automatic assignment of a DNS or to specify a primary and secondary DNS.

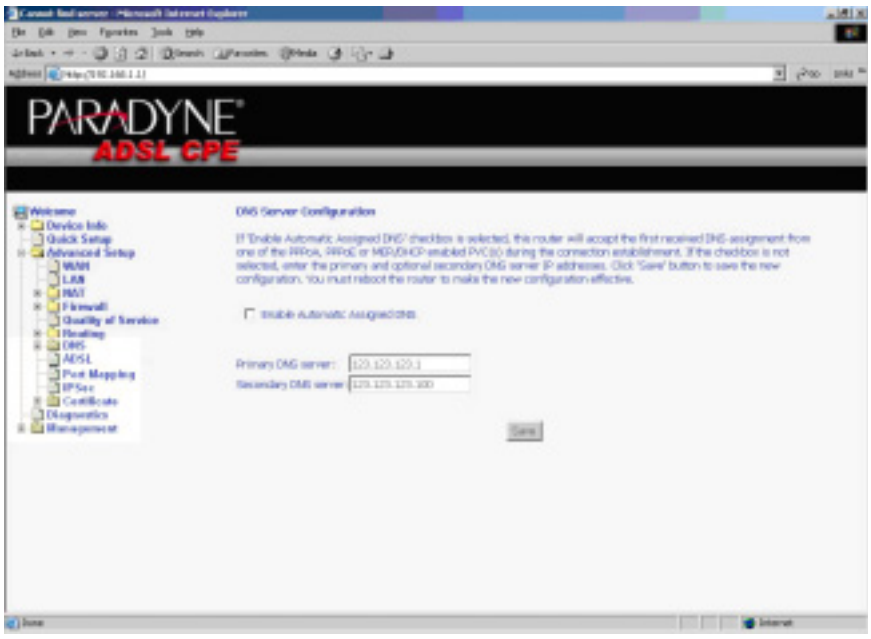

Figure 61: DNS Setup

Dynamic DNS

Use the Dynamic DNS screen to alias a dynamic IP address to a static hostname, allowing your router to be easily accessed from anywhere on the Internet.

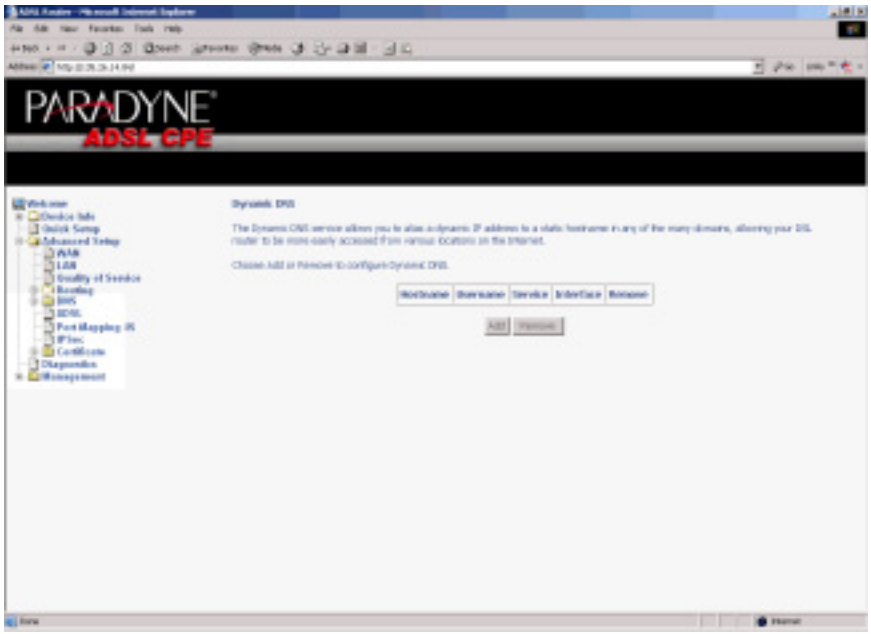

Figure 62: Dynamic DNS

To set up a Dynamic DNS entry:

1. Click on Add. The Add Dynamic DNS screen appears.

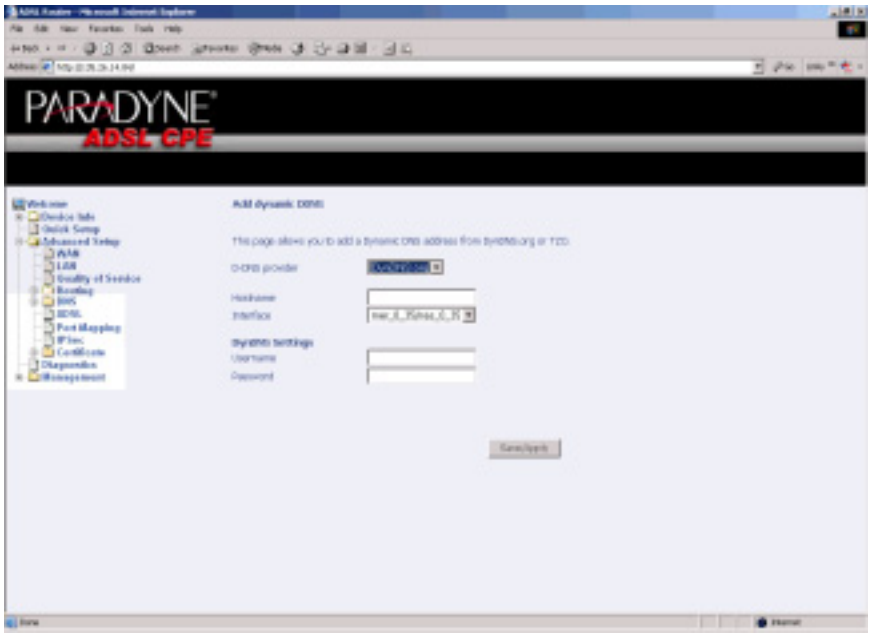

Figure 63: Adding a Dynamic DNS Entry

2. Select a D-DNS Provider from the drop-down list.
3. Enter the Hostname you have selected for the interface.
4. Select the router Interface from the drop-down list.
5. Enter the information you used to register with the dynamic DNS service: for DynDNS, enter your Username and Password; for TOZ, enter your E-mail address and Key.
6. Click on Save/Apply.

ADSL

There are three major items in the ADSL settings.

Figure 64: ADSL Settings

Modulation Methods

The following modulation methods are supported by the 6211 ADSL router:

- G.dmt Enabled
- G.lite Enabled
- T1.413 Enabled
- ADSL2 Enabled
- Annex L Enabled
- ADSL2+ Enabled.

Do not change this setting unless so directed by your ISP.

Capability

The following are included under Capability:

- Bitswap Enable
- SRA (Seamless Rate Adaptation) Enable

Do not change these settings unless so directed by your ISP.

DSL Advanced Settings

Do not change the DSL Advanced Settings unless so directed by your ISP. To view the DSL Advanced Settings screen, click on the Advanced Settings button on the DSL Settings screen (see Figure 64).

There are five test modes between the router and your ISP:

- Normal test: Puts the router in a test mode in which it only sends a Normal signal.
- Reverb test: Puts the router in a test mode in which it only sends a Reverb signal.
- Medley test: Puts the router in a test mode in which it only sends a Medley signal.
- No Retrain: In this mode the router will try to establish a connection as in normal mode, but once the connection is up it will not retrain if the signal is lost.
- L3: Puts the router into the L3 power state.

Figure 65: DSL Advanced Settings

Tone Selection

To view the ADSL Tone Settings screen, click on the Tone Selection button of the DSL Advanced Settings screen (see Figure 65).

The frequency band of ADSL is split up into 256 separate tones, each spaced 4.3125 kHz apart. With each tone carrying separate data, the technique operates as if 256 separate modems were running in parallel. The tone range is from 0 to 31 for upstream and from 32 to 255 for downstream.

Do not change these settings unless so directed by your ISP.

Figure 66: Tone Settings

Port Mapping

Use the Port Mapping screen to map multiple ports to a PVC and create bridging groups. Each group will perform as an independent network.

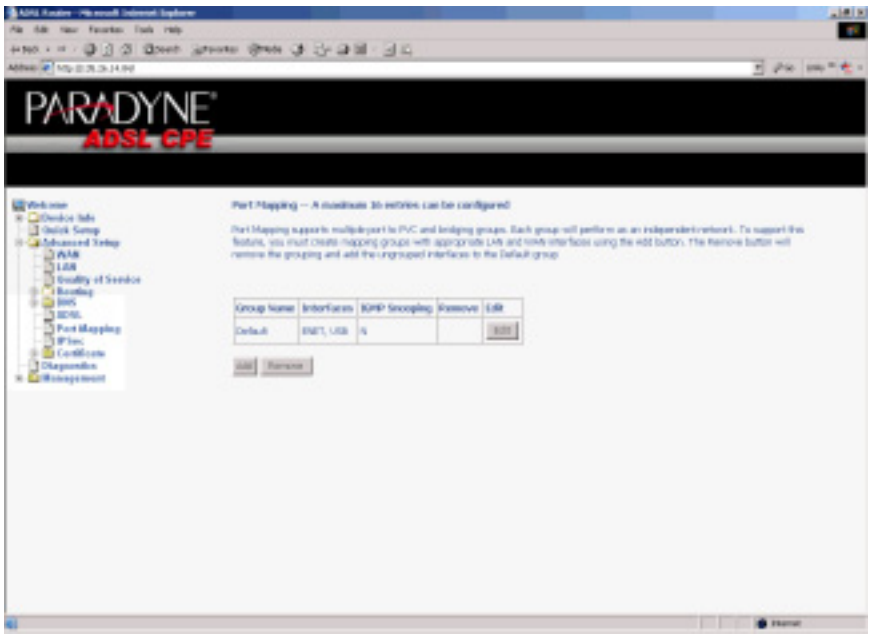

Figure 67: Port Mapping

To create a new mapping group:

1 Click on Add. The Port Mapping Configuration screen appears.

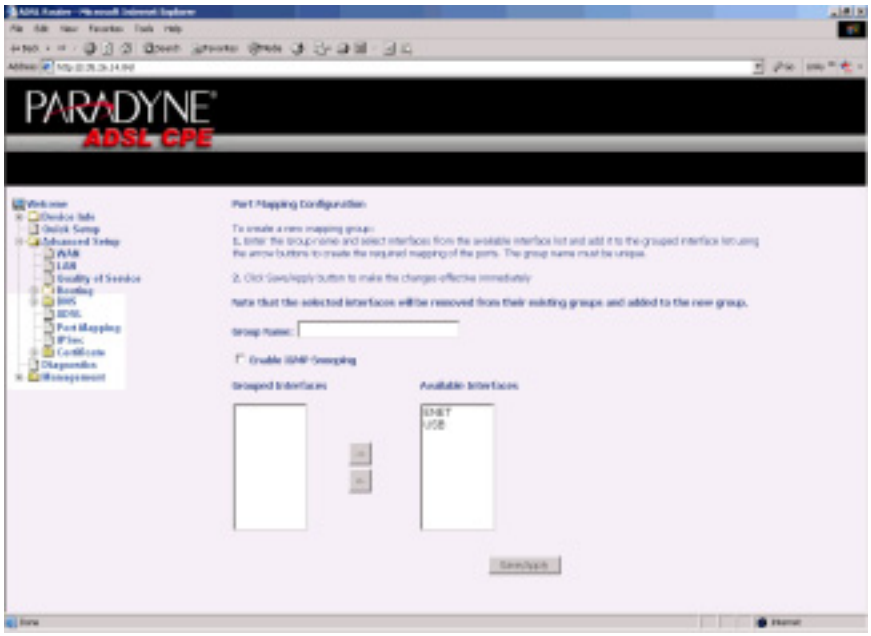

Figure 68: Creating a Port Mapping Entry

2 Enter a unique Group name.

3 Select interfaces from the available interface list and add them to the grouped interface list using the arrow buttons to create the required mapping of the ports.

4 Click on Save/Apply.

Certificate

Use the Certificate screen to add, view, or remove a certificate for use by a peer to verify your identity. A maximum of four certificates can be stored. You can add a certificate either by creating a new one or importing an existing one from a location where one is stored.

Note

Certificates are used with TR-069. Firmware that does not support TR-069 will not support certificates.

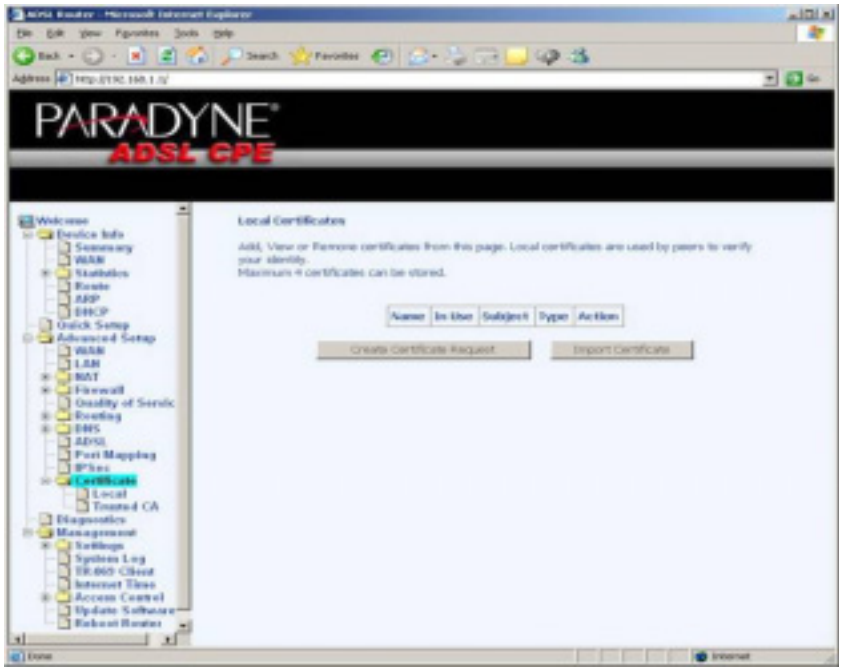

Figure 69: Certificate

To create a new certificate:

1. Click Create New Certificate Request. Follow the screens that appear to configure a new certificate.
2. Click on Save/Apply.

6 DIAGNOSTICS

Testing the DSL Connection

Your router is capable of testing your DSL connection. The individual tests are listed below. If a test displays a failure status, click on "Test" at the bottom of this page to make sure the failure status is consistent. If the test result continues to show a failure, click on "Help" and follow the troubleshooting procedures.

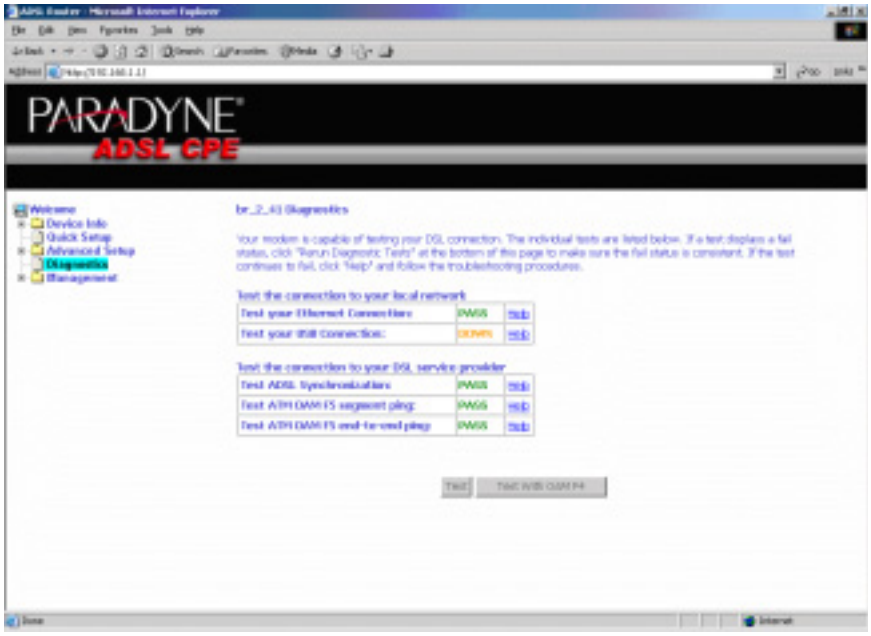

Figure 70: Diagnostics

7 MANAGEMENT

Saving and Restoring the Configuration

The configuration of your router can be backed up to a file, and also can be restored from a file. You can also restore the router to its factory default configuration.

Backing Up Configuration Settings

To back up your settings, select Management -> Settings -> Backup Settings.

Figure 71: Back Up Settings Screen

Verify that you would like to save the file.

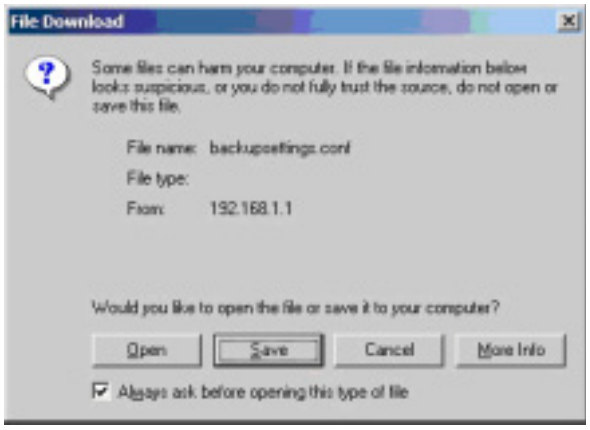

Figure 72: Backup Settings Upload Confirmation

Select the location where you want to save the file.

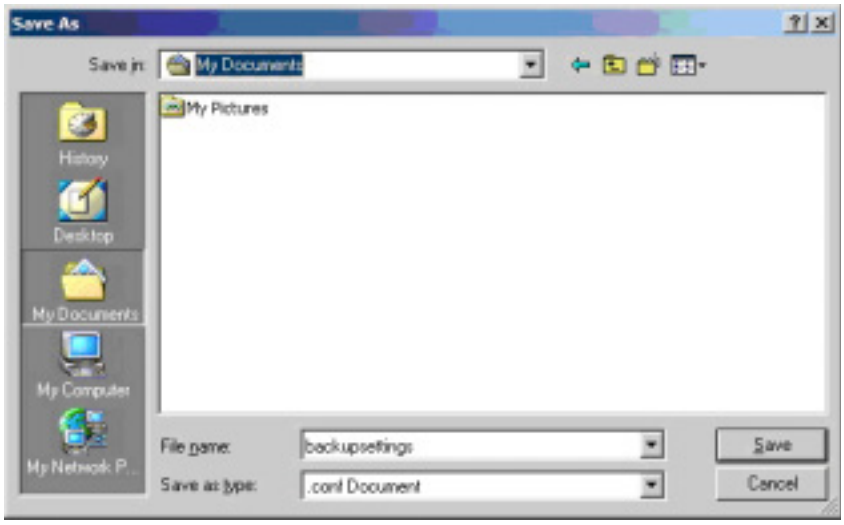

Figure 73: Backup Settings File Location

Restoring Configuration Settings

To restore saved settings, select Management -> Settings -> Restore User Settings.

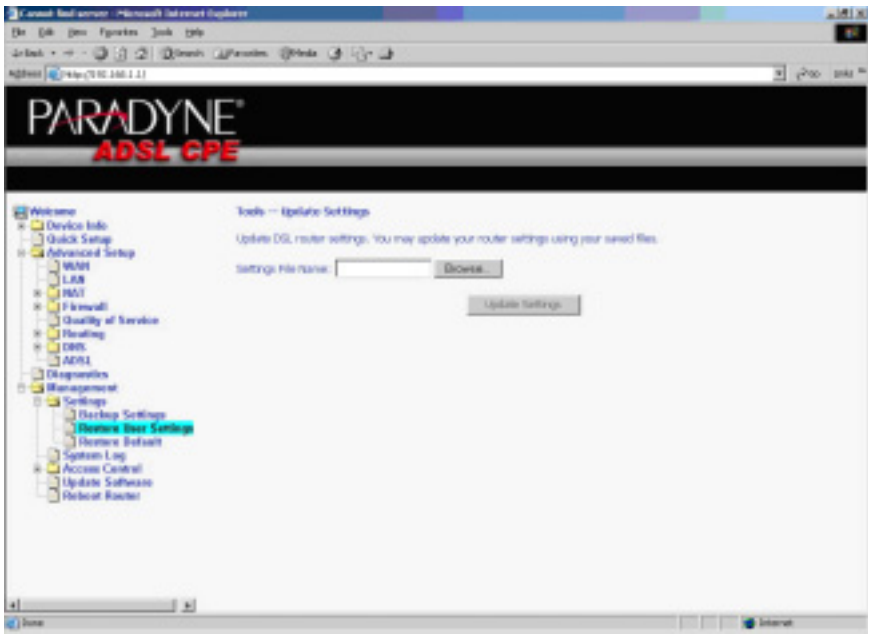

Figure 74: Restore User Settings Screen

Select the backup file you want to restore and click on Update Settings.

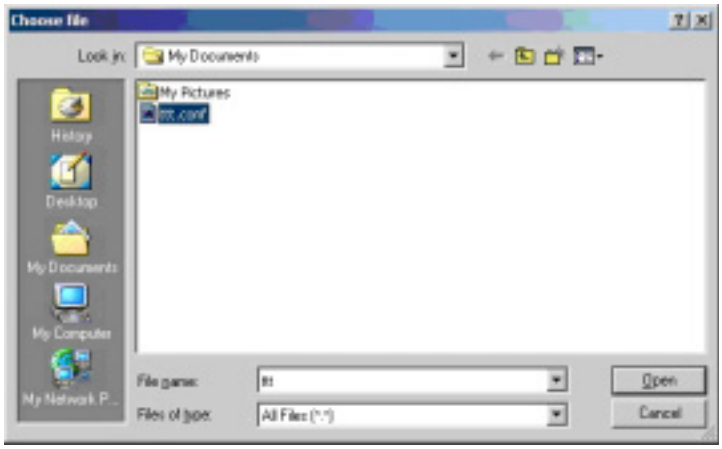

Figure 75: Restore Settings File Location

The router will restore settings and reboot to activate the restored settings.

Figure 76: Upload in Progress Screen

Restoring Default Settings

Restore Default will erase all current settings and restore the router to factory default settings.

To restore the router to factory default settings, select Management -> Settings -> Restore Default.

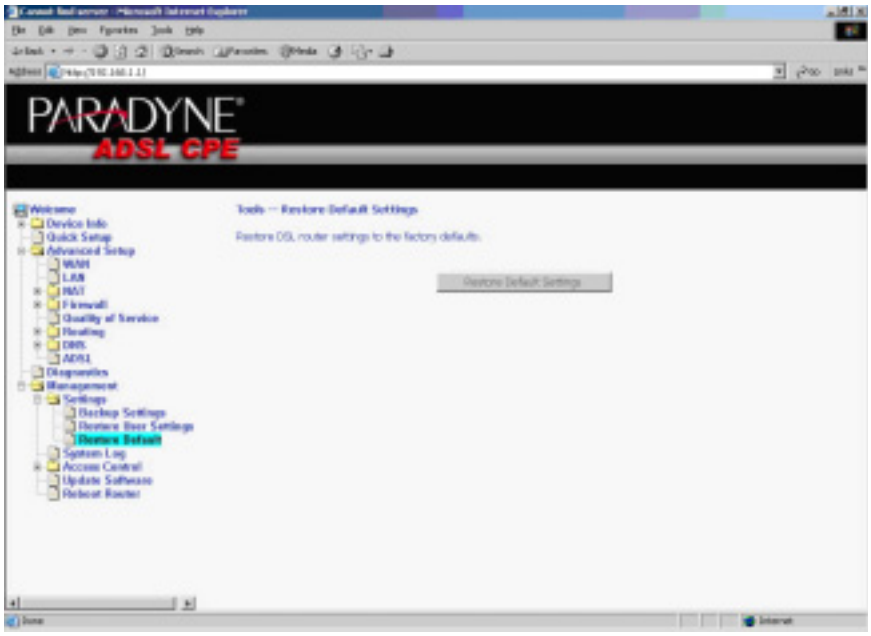

Figure 77: Restore Default Settings Screen

Reply OK to the confirmation dialog.

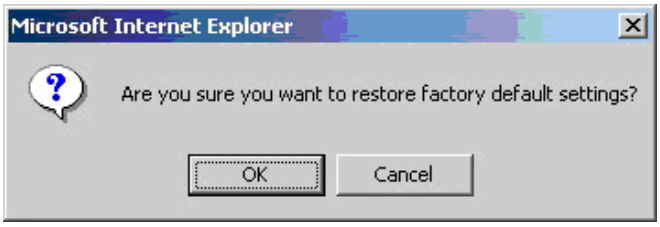

Figure 78: Restore Default Confirmation Dialog

The router will restore the default settings and reboot.

Figure 79: Restore Default Settings Reboot

System Log

The System Log dialog allows you to view the System Log and configure the System Log options.

Figure 80: System Log

View System Log

Click on the "View System Log" button to check the log file.

Figure 81: View System Log

Configure System Log

If the log is enabled, the system will log selected events: Emergency, Alert, Critical, Error, Warning, Notice, Informational, and Debugging. All events above or equal to the selected log level will be logged and displayed.

If the selected mode is "Remote" or "Both", events will be sent to the specified IP address and UDP port of a remote system log server. If the selected mode is "Local" or "Both", events will be recorded in the local memory.

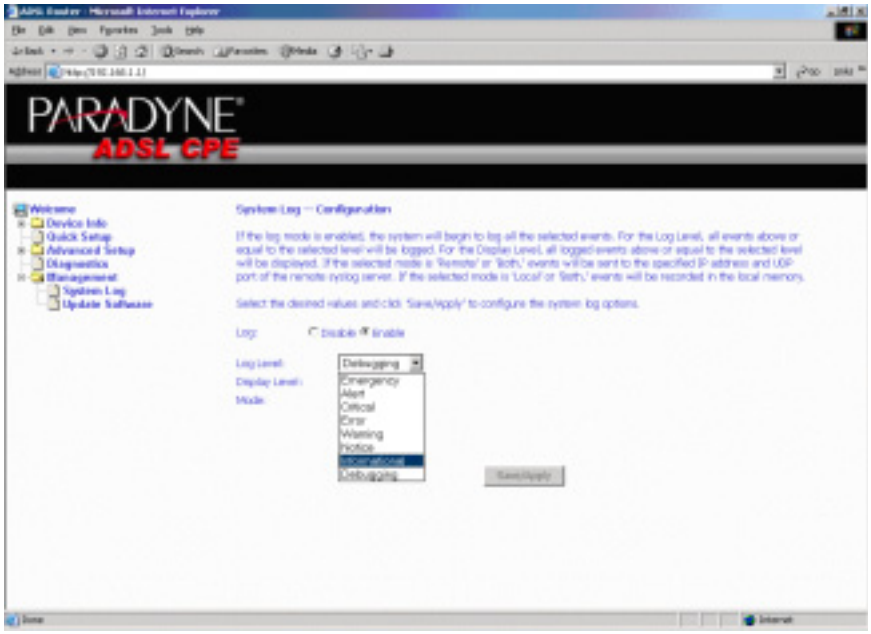

Figure 82: System Log Configuration

Select the desired values and click on the "Save/Apply" button to configure the system log options.

TR-069 Client

The router includes a TR-069 client which is a WAN management protocol. Default values are already filled in. If you wish to enable this protocol, then select **Enable** and fill in the text boxes according to your configuration. You must click on the **Save/Reboot** button for the change to take place. Firmware versions that support TR-069 do not support SNMP.

Internet Time

Use the Internet Time screen to specify whether the router uses Simple Network Time Protocol (SNTP) to obtain the time of day from SNTP servers on the Internet.

To set up the router to obtain time from an SNTP server:

1. Select “Automatically synchronize with Internet time servers”. The SNTP fields appear.

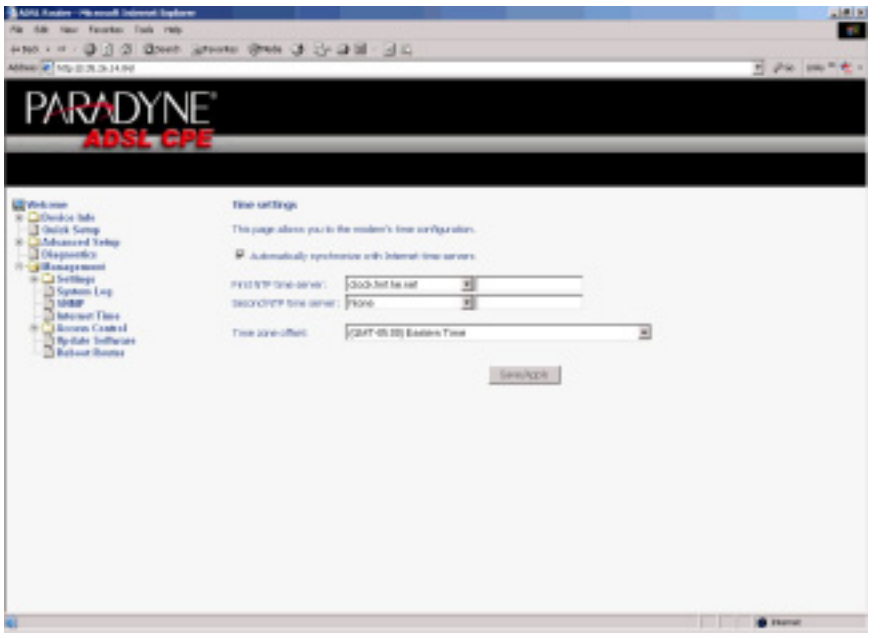

Figure 83: Internet Time Screen

2. Select SNTP servers.
3. Specify the time zone offset for your router’s location.
4. Click on Save/Apply.

Access Control – Services

You can enable or disable some services of your router by LAN or WAN. If no WAN connection is defined, only the LAN side can be configured.

Figure 84: Services Setup

If a WAN connection is defined, services of both the LAN side and WAN side can be configured.

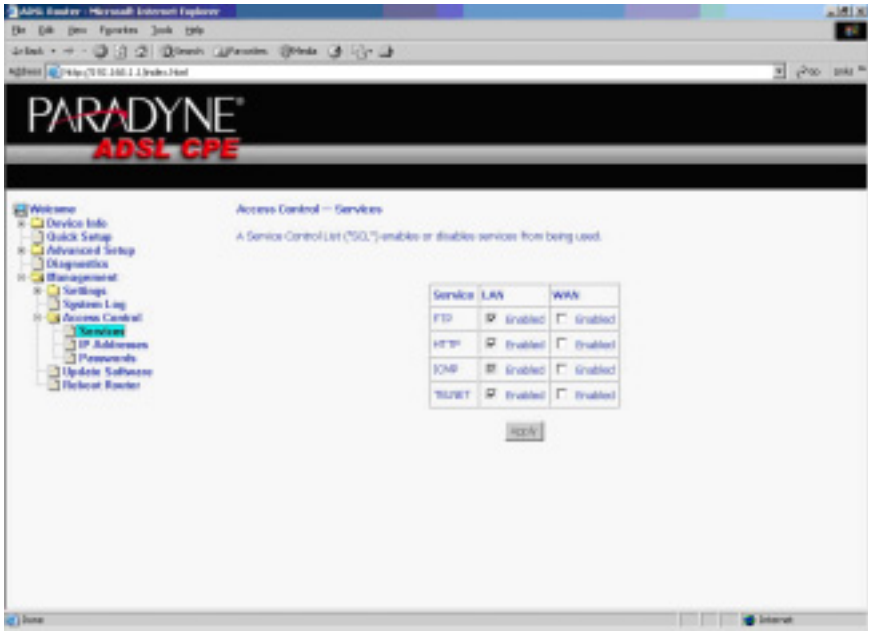

Figure 85: Services Setup for LAN and WAN

Access Control – IP Addresses

Web access to the router can be limited when Access Control Mode is enabled. The IP addresses of allowed hosts can be added using Access Control -> IP Address.

Figure 86: IP Address Setup

First, add the IP address to the IP address list.

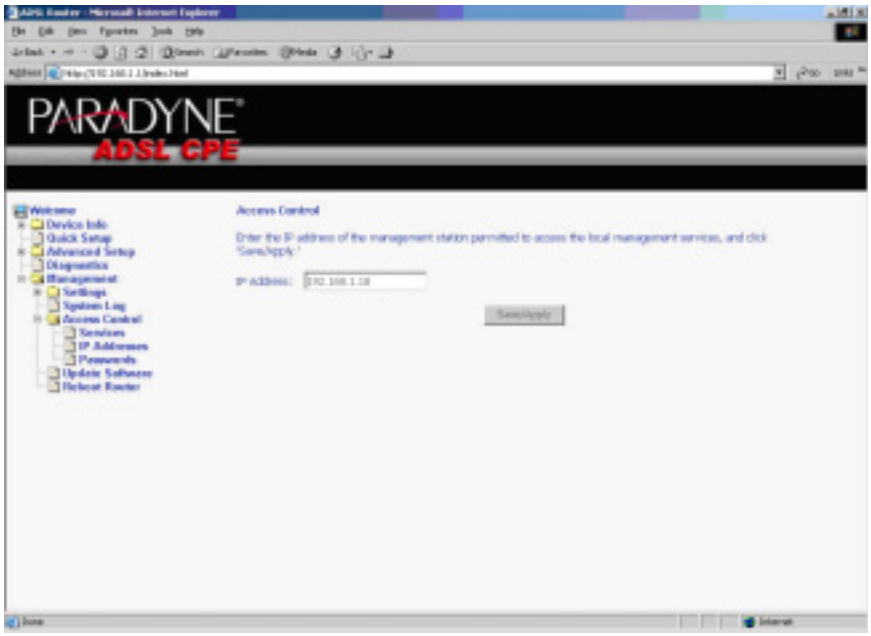

Figure 87: Access Control – IP Address Add Screen

Then select "Enabled" to enable Access Control Mode.

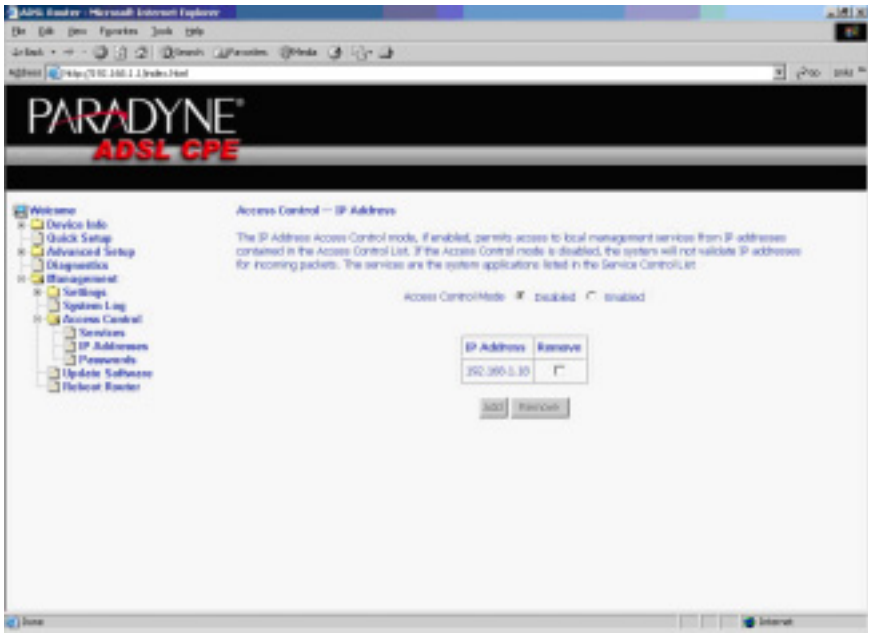

Figure 88: Access Control – IP Address Enable or Disable

Access Control – Passwords

Use Access Control -> Passwords to change a password. Select an account and enter the current password and the new password. Then click on Save/ Apply.

Update Software

If your ISP releases new software for this router, follow these steps to perform an upgrade.

1. Obtain an updated software image file from your ISP.

2. Enter the path to the image file location or click on the "Browse" button to locate the image file.

3. Click on the Update Software button once to upload the new image file.

Figure 89: Update Software

Note

The update process takes about two minutes to complete, and your router will reboot automatically.

Reboot Router

Select Management -> Reboot Router to reboot the router using the web interface. The router will save the current configuration and reboot itself using the new configuration. The rebooting process takes about two minutes to complete.

Figure 90: Reboot Router Screen

Figure 91: Reboot In Progress Screen

A SPECIFICATIONS

Specifications are subject to change without notice.

Table 5: 6211-I3 Specifications

Specification	Criteria
Environment	Operating Temperature: 32° F to 104° F (0° C to 40° C) Storage Temperature: –4° F to 149° F (–20° C to 65° C) Humidity: 5% to 95%, non-condensing
Interfaces	DSL Line: RJ11 Phone (if present): RJ11 (with integrated phone filter) Ethernet: 10/100BaseT, RJ45 USB 1.1
Power	100 VAC, 50 Hz 110 VAC, 60 Hz 220VAC, 50/60 Hz
Protocol Support	ANSI T1.413 (Full Rate ADSL) ITU G.992.1 (DMT) ITU G.992.2 (G.lite) ITU G.992.3 (ADSL2) ITU G.992.5 (ADSL2+) ITU G.994.1 (G.hs) ITU G.997.1
Size	1.2" High x 6" Wide x 4.4" Deep (3.0 cm High x 15.2 cm Wide x 11.8 cm Deep)
Weight (Shipping)	1.5 lbs (0.7 kg)

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